AMERICAN ARTISAN

SEPTEMBER
1941

RESIDENTIAL AIR CONDITIONING
WARM AIR HEATING • SHEET METAL CONTRACTING

ESTABLISHED
1880

LAMNECK FITTINGS *for:*

Rush Jobs Shop Overloads Labor Savings

Lamneck Prefabricated Duct and Fittings will do the job for you on time—relieve your overloaded shop and let your overworked crew do more jobs easier and faster. Talk to your nearest Lamneck Distributor and see Lamneck's precision made fittings. Learn from your jobber how he and Lamneck Fittings can help you do your part for Defense by doing a bigger job, better and faster.

REMEMBER ***With today's big volume, repair and replacement work is essential. Use Lamneck smoke pipe and elbows for the best repair job you have ever done.***

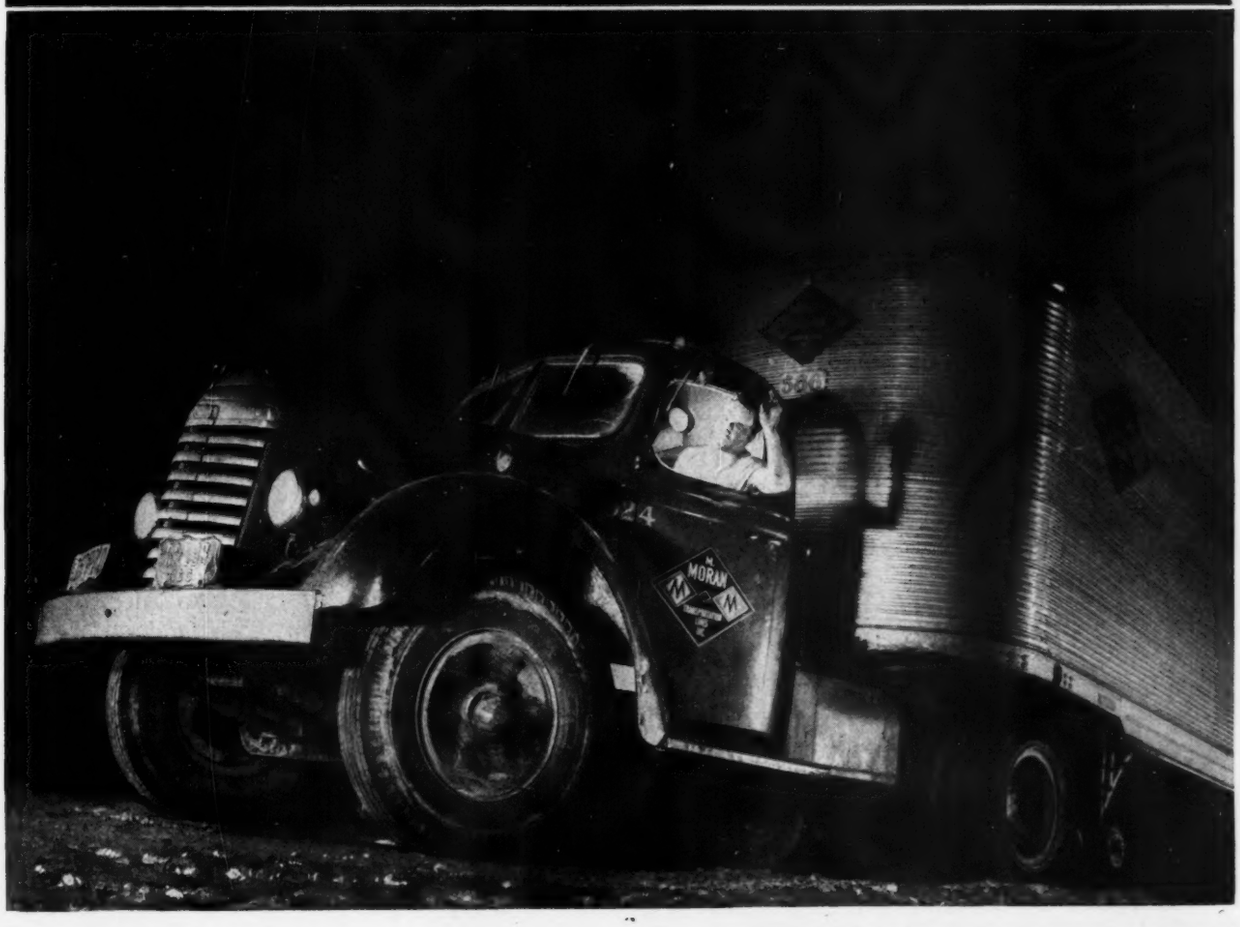
LP INC.

Specify LAMNECK

LAMNECK PRODUCTS INC. Middletown, Ohio

Simplified Furnace Pipe and Fittings and Prefabricated Duct and Fittings for all Types of Residential Gravity and Forced Warm Air Heating and Air Conditioning Systems.

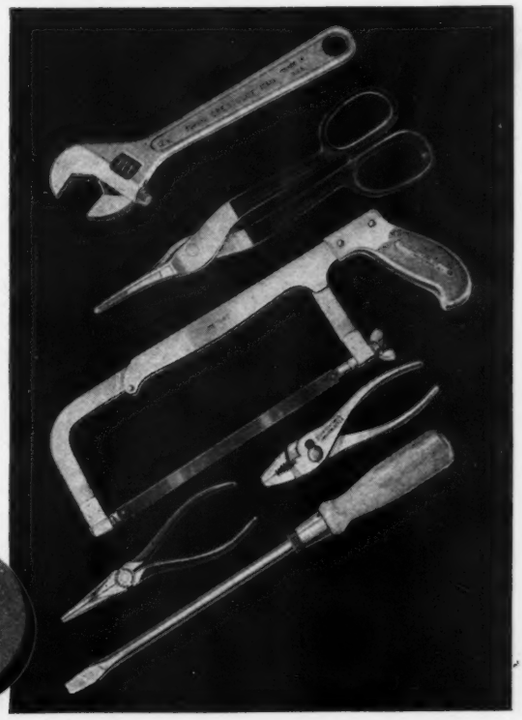
Where trustworthy tools are vital



Vital link in America's mammoth distribution scheme are the thousands upon thousands of giant trucks that day and night ply the nation's highways. With millions of dollars invested in rolling stock, the trucking industry must "keep them rolling" to make a profit. In the shops, Crescent and Crestoloy Tools play a prominent part in service and maintenance work, and on the road, they help to keep the pay loads moving.

Crescent Tools include adjustable wrenches, pliers of all types, hacksaws, snips, screwdrivers, etc., etc. They are sold under the "Crescent" and "Crestoloy" trade names by hardware dealers and industrial distributors everywhere.

CRESCENT TOOL COMPANY, JAMESTOWN, N. Y.



YOU CAN ALWAYS DEPEND ON

CRESCENT TOOLS

AMERICAN ARTISAN

WITH WHICH ARE MERGED

FURNACES AND SHEET METALS

AND

Warm-Air Heating

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

J. D. Wilder, Editor — A. A. Kennedy, Assistant Editor

Vol. 110, No. 9 — September, 1941 — Founded 1880

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In This Issue

WE believe that readers will find the article by Professor S. Konzo, page 47, unusually interesting. We are pleased to announce, also, that this is the first of a series by Mr. Konzo—the articles planned will cover all phases of the problem of making existing heating plants more efficient, more economical, more satisfactory to the owner.

●

The reason for this series, of course, is obvious. FHA has announced a campaign to make over existing buildings into additional quarters for war industry workers. New, repaired, reconditioned heating systems will, naturally, be one of the first things the owner will consider.

●

It will not, in our judgment, be enough to put the furnace in its original condition—too many of the older installations were designed on lower upstairs temperatures; on the personal design of the installer rather than on scientific research; they are not satisfactory by 1941 standards.

●

So we feel that considerable reconditioning will be necessary. Such reconditioning ought to be based on research data established by our 20-year research program at the Research Residence. So Professor Konzo, who has lived with this program will, in the series, sort out and present the data we will need to undertake this tremendous program.

●

We would also like to call readers' attention to the "Defense House Heating" article on page 58—the second in several excellent ideas whereby contractors have put central heating in low cost houses.

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More than 8,000 copies of this issue are being distributed

An A No. 1 Defense Job...

I was in a sheet metal shop the other day where they used to handle quite a bit of Monel. I ask the owner how he is makin' out in the Emergency an' he says swell he's gettin' quite a bit of Monel business.

"For instance, Tim," he says, "these tanks here were quite an order. A concern we've done lots of peace-time business for is makin' water-purifying units for the army. An' we make the Monel tanks for 'em."

"Well," I tell him, "that doesn't look like what you call a *big* job." "Right you are," he agrees, "but that's only *part* of the story. So far," he goes on, "we've made 500 tanks for portable units, an' another 50 for mobile units."

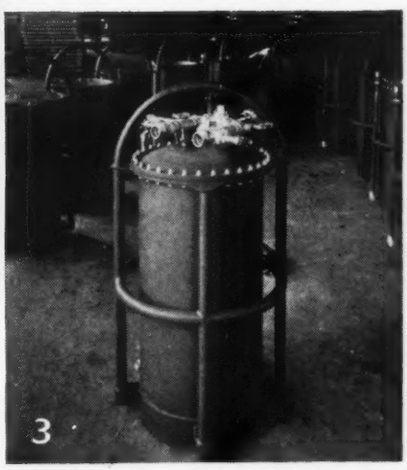
The way they turn out these tanks, they spin the heads out of 16 gauge Monel sheet. The outer shell they make out of 18 gauge Monel with the seam electric welded as you see in the second picture. Other parts of these units are made from Monel sheet, too, an' they use quite a few Monel castings which they get from the INCO foundry at Bayonne.

After each unit is finished (third photo) they give it a coat of the regular army color.

The reason they use Monel on this job, you can spin it easy an' also do a good job of weldin'. On top of that, army men that's used to orderin' metals know that Monel don't rust, so won't spoil the water, an' it will stand up under tough conditions in the field.

By now I suppose you've all gotten in touch with your local O. P. M. Defense Contract Service. If you haven't you'd better . . . pronto . . . if you want some of those A No. 1 Defense Jobs.

Tim Shears



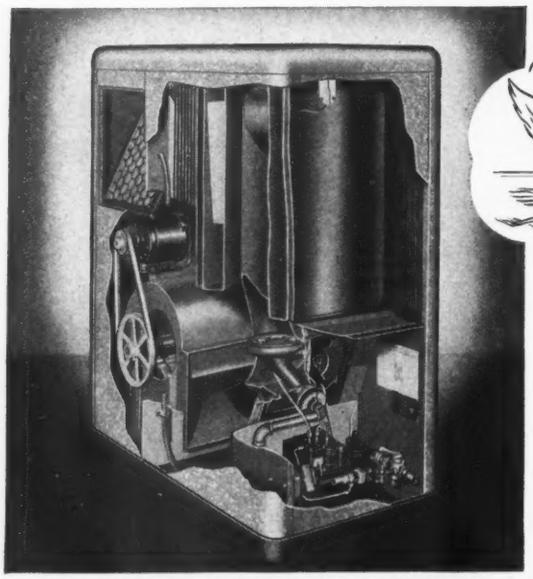
1. *Spinning a head in 16 gauge Monel. Two required for each tank.*

2. *Electric welding the 18 gauge Monel outer shell.*

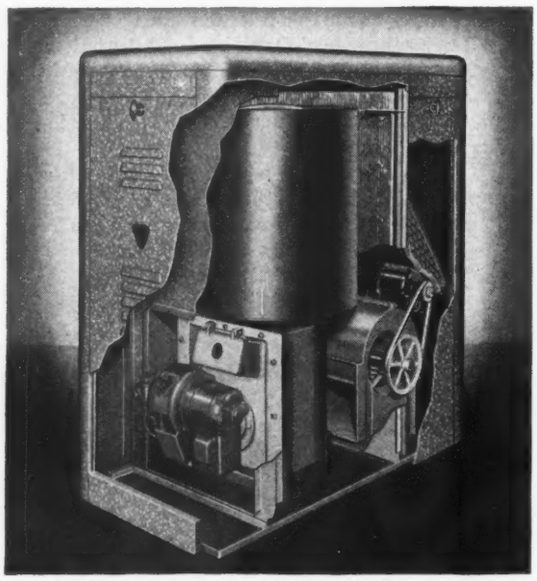
3. *One of the completed units finished in army color. In background are other units in various stages of fabrication.*

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York, N. Y.

RYBOLT



RYBOLT GAS-FIRED WINTER AIR CONDITIONER



RYBOLT OIL-FIRED WINTER AIR CONDITIONER

NOTICE TO JOBBERS

Under present conditions our production capacity is taxed to the limit to meet the requirements of our regular customers to whom we feel we owe first consideration. In justice to them, therefore, and also because we desire to cooperate to the fullest extent with the National Defense Program, we do not feel free at this time to consider any new distribution outlets, much as we appreciate the requests which we have been receiving.

TWO NEW RYBOLT UNITS TO MEET MODERN *Automatic Heating* REQUIREMENTS!

● Realizing the need for winter air conditioners that will meet the requirements of the small house or limited space, RYBOLT has designed two new units that are unusually compact yet complete with the most advanced features of modern automatic heating. Both units—gas-fired and oil-fired—provide all the advantages of heating efficiency, convenience, safety and economy possible today with the use of these two fuels.

The new space-saving RYBOLT GAS-FIRED UNIT

The new RYBOLT Series RS Gas-Fired Winter Air Conditioner embodies many improved features to insure comfortable, even heat with utmost convenience and economy. Double protection gas valve control guarantees safe operation under all conditions. Complete with quiet running blower, automatic humidifier, room thermostat and Dust-Stop filters. Handsome hammerloid finish cabinet. Shipped completely assembled, which materially reduces handling time for jobbers and dealers. Also means big saving of installer's time because he will not have to assemble unit on the job.

A new compact RYBOLT OIL-FIRED UNIT

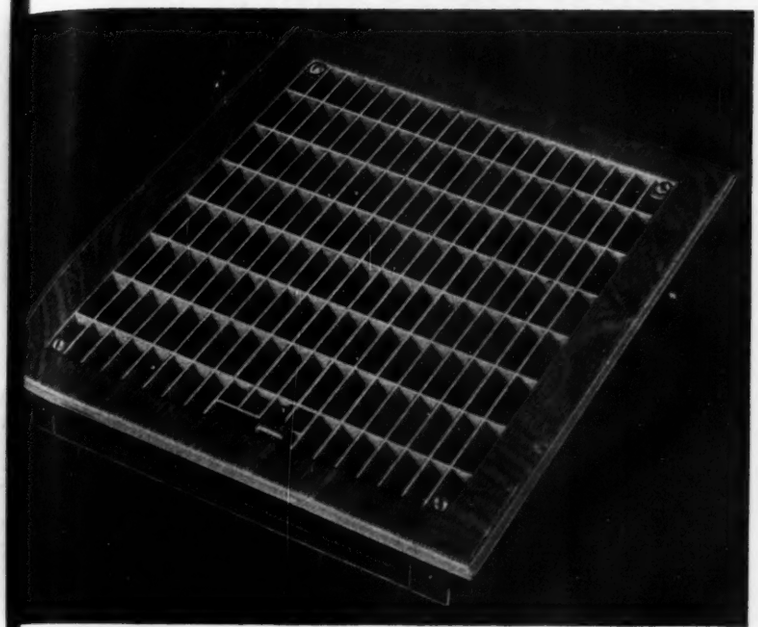
With no sacrifice of efficiency or high quality performance, this unit is sized to fit into minimum space. Completely automatic, quiet in operation, fully dependable. Pull-out feature of the oil burner makes it extremely easy to service. Burner, controls and blower are completely concealed yet easily accessible. Complete with quiet running blower, Dust-Stop filter, automatic humidifier, room thermostat. Handsome cabinet finished in hammerloid enamel.

TRADE MARK

THE RYBOLT HEATER COMPANY

615 MILLER STREET ★ ASHLAND, OHIO

ADD SELLING PUNCH

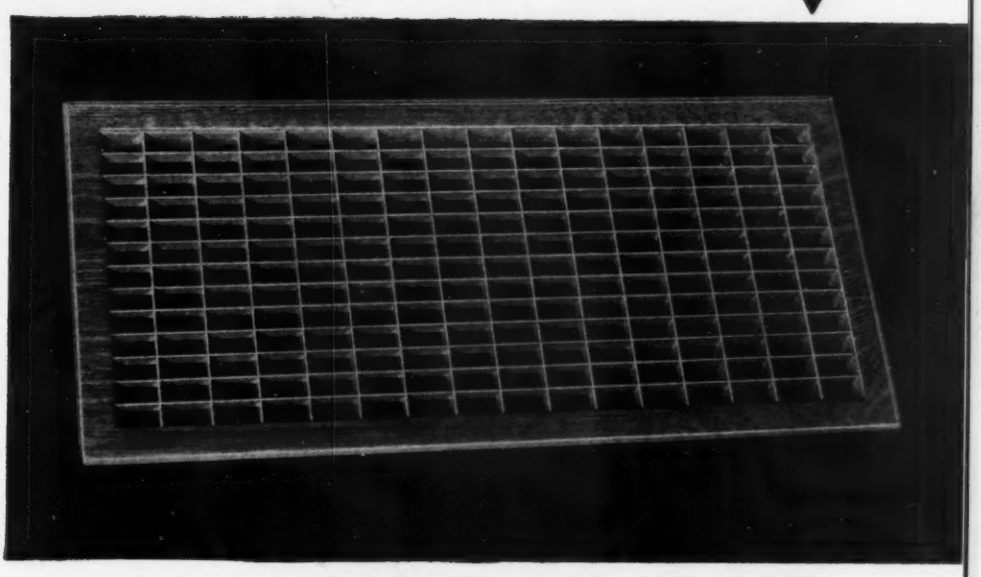


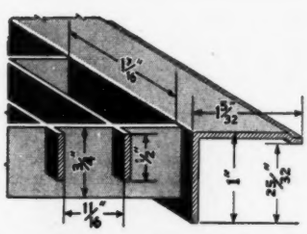
to your FLOOR TYPE INSTALLATIONS *without adding a penny to Costs!*

Use H&C NO-FLEX *Registers and Return Air Faces*

No. 210 FLOOR REGISTER
Standard mesh 7/16" x 1-7/16"

No. 265 RETURN AIR FACE
Standard mesh 11/16" x 1-7/16"





Cross section of No. 265 in 4" to 18" widths x 4" to 60" lengths. Larger sizes are made with deeper braces for greater rigidity. Cross members have squared edges for improved walking surface and better appearance and are welded to each other and to the frame at frequent intervals. Margins are straight as a die. Corner joints invisible on surface.

Illustrating the manner in which corner joints are welded on underside.

Current catalogs: No. 41 (Gravity Registers) and No. 41 AC (Air Conditioning Registers). If not on hand write us.

These exceedingly fine floor items are neat and trim in every detail and obviously very sturdy. They have that "QUALITY" appearance which goes a long way in convincing the prospect that you are offering only the best of everything in your entire proposal. Try showing them to your next prospect. You'll find that they add selling punch —an extra value that costs you nothing; for H&C "NO-FLEX" Registers and Return Air Faces cost not a penny more than the ordinary type.

HART & COOLEY MANUFACTURING CO

Warm Air Registers · Air Conditioning Grilles · Damper Regulator Sets · Dampers · Chain · Pulle

HOLLAND H&C MICHIGAN

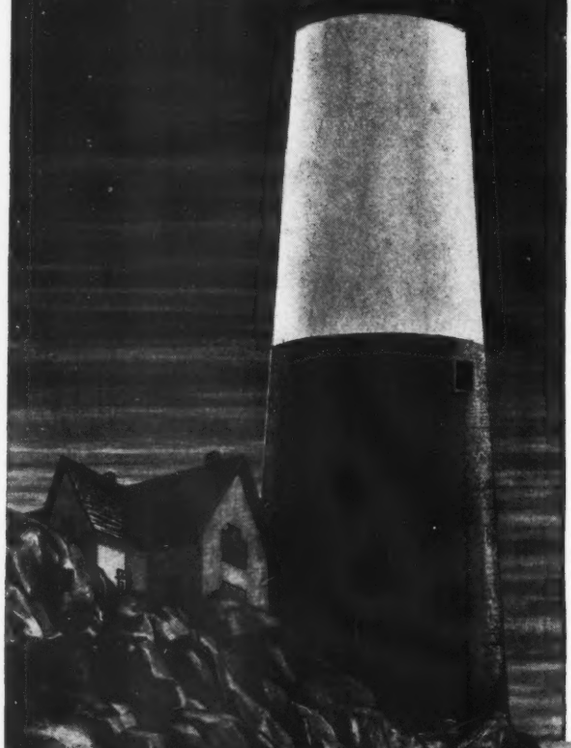
Chicago Office: 61 W. Kinzie St. Philadelphia Office: 1600 Arch St.

Western Representatives: John T. Rowntree Co., Los Angeles, San Francisco, Portland, Seattle, Salt Lake City, Denv

YOUR GUIDE TO BETTER HEATING PRODUCTS

SUNBEAM

WARM-AIR FURNACES AND WINTER AIR CONDITIONERS



For years **SUNBEAM** Units have been leaders in the field of Warm-Air Furnaces and Winter Air Conditioners. In 1941, **SUNBEAM** is well on its way to beat its own enviable sales record!

There you have the best proof of the *quality*, the *dependability*, and *economy* of the **SUNBEAM** line . . . of its ready acceptance by homeowners, architects and builders. That's why it will pay you to feature **SUNBEAM** Units and make more sales, easier sales.

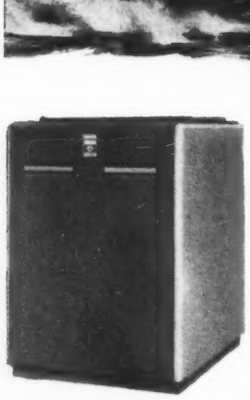
Remember too—**SUNBEAM**'s national advertising helps pre-sell prospects, and striking, colorful new literature and many types of dealer helps are available on request.

Time Payments available in accordance with U. S. Government regulations.

Write today for full information and the name of the **SUNBEAM** jobber nearest you.

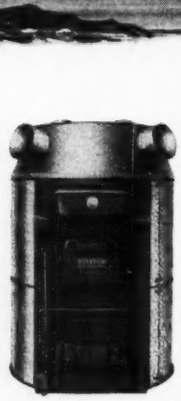
AMERICAN RADIATOR & Standard Sanitary

New York CORPORATION Pittsburgh



(*left*) **THE NEW MOHAWK** — A beautiful, new, high-quality, moderately priced **Gas-Fired Winter Air Conditioner.** Made in 9 sizes from 60,000 to 300,000 Btu input per hour. Each Heating Element is made in 2 sections of rugged cast iron. Jacket is finished in smart Placid Two-Tone Blue.

(*right*) **THE KENWOOD** — Although modest in cost, the Kenwood is a rugged, skillfully made cast iron Furnace for economical operation. Has heavy one-piece radiator, duplex grates, slip-on fronts and many other features.



AMERICAN HEATING EQUIPMENT COSTS NO MORE THAN OTHERS

THE CLIFTON — The Ace of Steel Furnaces—for Oil or Coal —stoker or hand-fired. The Clifton is a virtually seamless one-piece unit constructed of rugged No. 7 gauge boiler plate. Many excellent, perfectly coordinated features assure efficient, economical operation.

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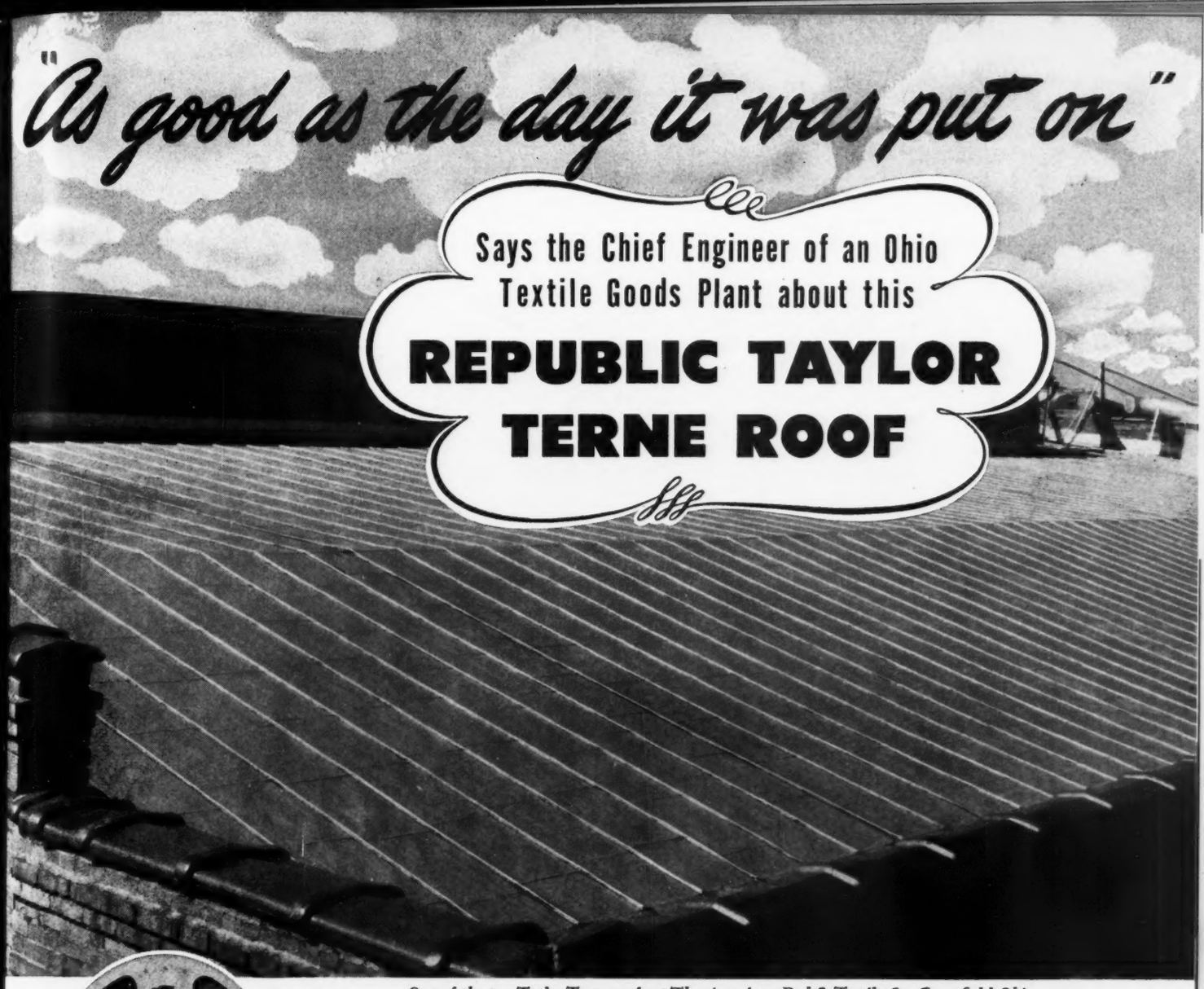
"As good as the day it was put on"

Says the Chief Engineer of an Ohio Textile Goods Plant about this

REPUBLIC TAYLOR TERNE ROOF



One of the two Taylor Terne roofs at The American Pad & Textile Co., Greenfield, Ohio

But this building didn't always have a Taylor Terne Roof. Eight years after it was built in 1901, its original roofing had to be replaced. Then this Taylor Terne Roof was laid—and it's been there ever since. After 32 years, it's as good as new—*and looks it.*

Show your prospects this Taylor Terne roof that's still in its prime after 32 years, *with practically no attention except for painting every four years.* Since 1810, Taylor Ternes have set innumerable records of over a half-century of service.

That's the kind of quality you need to sell architects, contractors and owners—to build a sound, profitable roofing business.

WRITE FOR BOOKLET 365

Republic Taylor Ternes are made of copper-bearing steel, coated with a lead-tin alloy. They come in sheets and rolls, in several weights of coating, and are stocked in all large cities. Get the facts about forms, sizes, gauges and method of application from Booklet 365. Write for it today.

REPUBLIC STEEL CORPORATION

General Offices: Cleveland, Ohio

Berger Manufacturing Division • Culvert Division • Niles Steel Products Division
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REPUBLIC *Taylor* ROOFING TERNES

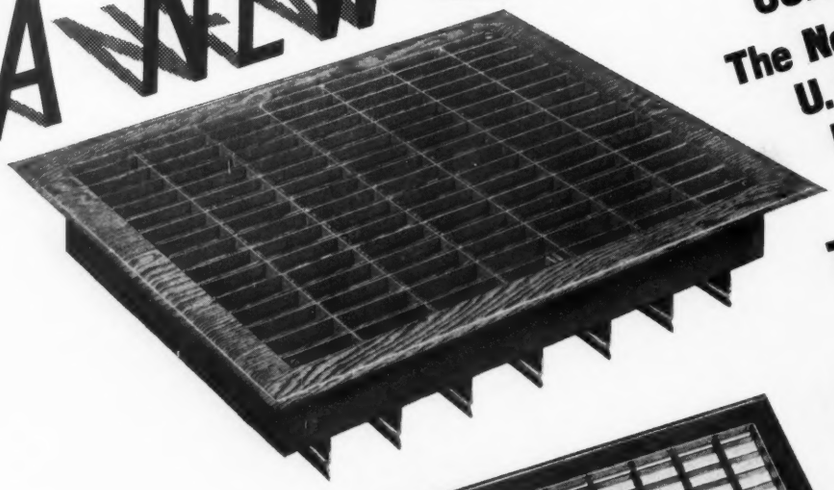
A NEW SLANT

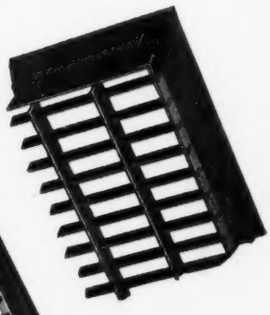
IN FLOOR REGISTER CONSTRUCTION

The New 1942 Model U. S. TRUSSTEEL FLOOR REGISTER

NOW READY FOR SHIPMENT

The No. 400



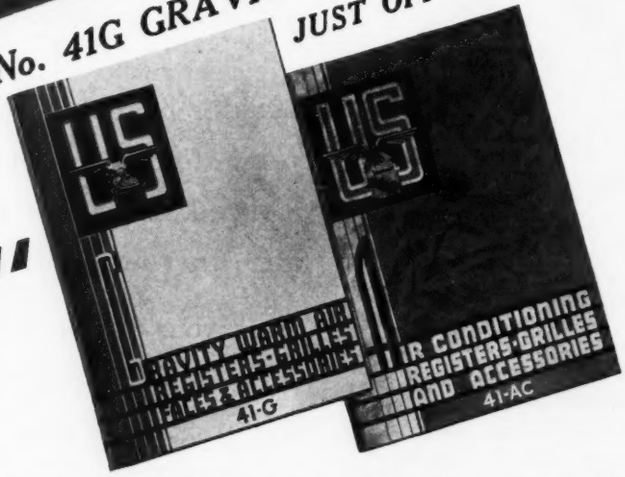


No. 405 U. S. TRUSSTEEL Cold Air Face

SUPERIOR IN EVERY CONSTRUCTION DETAIL

Get the NEW No. 41G GRAVITY REGISTER BOOK JUST OFF THE PRESS

"READ ALL ABOUT IT"



SWITCH NOW to the TIME TESTED and PERFECT U. S. LINES of AIR-CONDITIONING and GRAVITY REGISTERS and GRILLES

UNITED STATES REGISTER CO.

BATTLE CREEK, MICHIGAN

MINNEAPOLIS • KANSAS CITY • ALBANY • SAN FRANCISCO • NEW YORK, N. Y.

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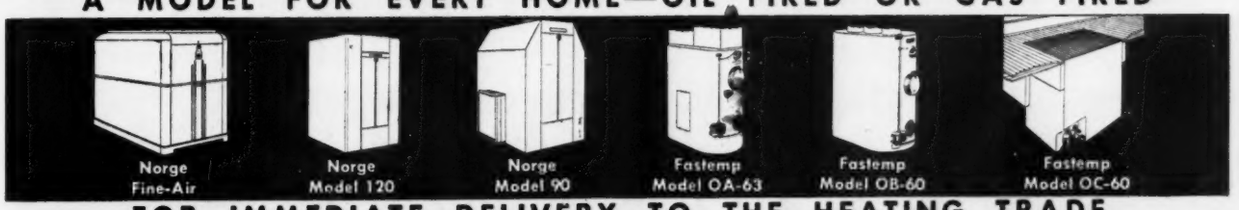
LOOK — ANOTHER NEW NORGE "PACKAGE" —DESIGNED ESPECIALLY FOR DEFENSE HOMES
AND WHAT'S MORE, IN SPITE OF HEAVY SHIPMENTS, EVERY NORGE MODEL IS AVAILABLE FOR IMMEDIATE DELIVERY
New MODEL OD-70 COMPLETELY AUTOMATIC; PRESSURE VAPORIZING; ONLY 26" SQUARE; PRICED FOR DEFENSE HOMES . . .
Model OD-70 is only 26" square and 67" high; is quickly and easily installed in basement or utility room. Bottom or side inlet, top discharge. Develops 70,000 B.T.U. at the bonnet and delivers 800 c.f.m. All controls fully automatic. Two-stage mechanical draft oil-burner listed as standard by Underwriter Laboratories and fully approved for CS-75. Completely factory wired. Beautiful pearl gray baked enamel finish. Streamlined cabinet. 15 models ranging from 60,000 B.T.U. to 165,000 B.T.U. bonnet output, backed by two of the greatest names in American industry—Norge—Borg-Warner. Immediate delivery. Write or wire.
NORGE HEATING & CONDITIONING DIVISION
BORG-WARNER CORPORATION
12345 KERCHEVAL AVE. • DETROIT
See NORGE before you buy!

A MODEL FOR EVERY HOME—OIL FIRED OR GAS FIRED



FOR IMMEDIATE DELIVERY TO THE HEATING TRADE

COMPLETE PITTSBURGH LOCKS

FOR THIS FITTING MADE *IN 26 SECONDS!*

One man, using a Lockformer 22, made the four Pittsburgh Locks required for the elbow shown in *exactly 26 seconds!* Compare this speed with that of Hand Brake forming and you begin to realize the tremendous difference in time—in labor costs —*in net profit* that the Lockformer makes.

A Big Shop in a Small Space

Lockformer's production speed increases shop capacity, too. Fabrication is faster and metal moves through the shop more quickly — makes "room" for handling more jobs without increasing floor space.

Better "Head" Work Because of Less "Back" Work

Lockformer equipment eliminates heavy Brake work—helps keep that "morning pep" all day long. Mechanics do a better job—spend more of their time at *skilled* labor—less at *manual* labor.

Prove It Yourself in Five Minutes

Demonstrating the Lockformer takes less than five minutes, and running it yourself will prove the statements we make. Isn't it worth that much time to find out, definitely, whether or not you're passing up a *major advance in the sheet metal field?* Right now is a good time to send the coupon!

The Lockformer Co.,
4615 Arthington St., Chicago.

Gentlemen: ( ) I'd like a demonstration
( ) Send me literature

Name .....

Address .....

City .....State.....

THE LOCKFORMER CO.

4615 ARTHINGTON STREET, CHICAGO, ILLINOIS

The Most Complete Dealer Support in the Whole Heating Field!

Janitrol recognizes that merchandising is as important in modern selling as the merchandise it sells. The new portfolio . . . Janitrol Sales Preparedness Program . . . is typical of the many sales helps available to Janitrol sales outlets. Those "helps" include sound slide films and charts for sales training . . . sound slide films for consumer use . . . an abundance of colorful literature for direct mail, attractive pieces for hand-out service.

Since the merchandising problem varies with the size of the local market and the type of sales outlet, Janitrol's program is a flexible one. It can be effectively applied to any outlet, large or small.

The large outlet can use every item in the program to carry on campaigns fully as thorough as those used by the biggest distributors of autos, refrigerators and other appliances merchandised in metropolitan areas.

If the small outlet wants only a 4-inch newspaper advertisement, he will find a wide selection in the Janitrol program. If his plans are more extensive, he is offered a wide assortment of direct mail pieces for both builder and home owner.

Janitrol's Sales Preparedness Program is a treasure house of merchandising helps — not just suggestions, but materials ready for use.

If you have not as yet seen a copy of this new program, your Janitrol district representative will be glad to show you one.

SURFACE COMBUSTION CORPORATION, TOLEDO, OHIO

Offices and Engineering Service in Principal Cities

The Sales Preparedness Program, illustrated above, contains every form of merchandising support for the smallest or largest outlet.

JANITROL

SC

WINTER AIR CONDITIONERS · CONVERSION BURNERS · UNIT HEATERS · GRAVITY FURNACES

In this, our 75th year in business, we are faced with constantly new and changing problems—many of which are as strange to us as they are to the rest of the United States.

But we've been thru wars before—several of them!—and we've been fairly successful in avoiding unwarranted hysteria.

We believe we will be able to do so this time too.

We are making no extravagant promises, but we do promise to continue to supply all the Handy Pipe and other products possible—as long as we can get the necessary materials—because we believe that the continued employment of men in peacetime vocations and keeping Americans healthy are truly vital parts of National Defense—and, certainly, damp, ill-heated homes would affect health.

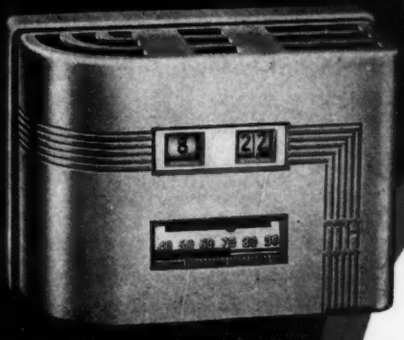
"Keep the Home Fires Burning" is important today too!

F. Meyer & Bro. Company, Peoria, Illinois

for

"WAR on WASTE"

use Chronotherm



■ The Minneapolis-Honeywell Chronotherm is a most important weapon to use in the war on waste. Not only does it conserve fuel because of its inherent precision and accuracy, but because it automatically lowers temperature to a fuel saving level at night and automatically restores it in the morning, it saves from 10 to 30 per cent. And remember, Chronotherm not only saves fuel and pays for itself, but it also triples your thermostat profit. Chronotherm will help you win the war on waste. Minneapolis-Honeywell Regulator Co., 2726 Fourth Avenue South, Minneapolis, Minn. Canadian Plant: Toronto. European Plant: London. Company owned branches in forty-nine cities.

MINNEAPOLIS-HONEYWELL is Selling AUTOMATIC HEATING FOR YOU WITH $77,000,000 MAGAZINE and BILLBOARD MESSAGES

MINNEAPOLIS-HONEYWELL

CONTROL Systems

Star performance at the heart of the gas appliance—The BURNER!

Only BARBER Conversion Burners

Have This Combustion Principle . . .

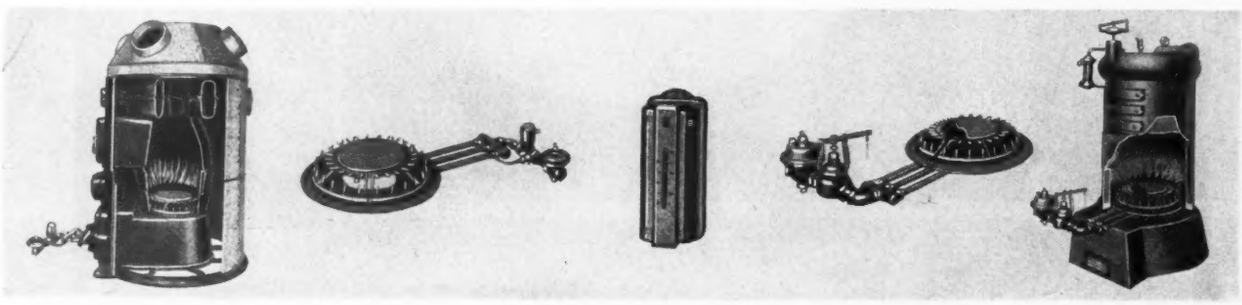
No matter how much any conversion burner may be dolled up, or built up with elaborate elements for "retaining" or "concentrating" heat—remember that the combustion principle itself is the fundamental factor in efficiency. The famous patented Barber Jets, available in no other burner, with their auxiliary air feed, produce a 1900° flame temperature on atmospheric pressure. The resulting high efficiency combustion, and perfect control and concentration of heat, are responsible for Barber's record of economy, in many thousands of installations.

For air conditioning, warm air, or steam, Barber is the ONE conversion burner that assures perfect combustion on natural, manufactured, Butane-Propane or bottled gas. For conversion jobs that stay sold, for less servicing and more customer good-will, equip YOUR conversion jobs with Barber Burners.

Barber Conversion Burners, offered with a wide choice of control equipment, have brought all essential advantages of automatic gas heat to thousands of owners of "solid fuel" furnaces and boilers. Made in a complete range of types and sizes for both round or oblong furnaces and boilers—all models easily and properly adjustable to grate sizes. Listed in A. G. A. Directory of Approved Appliances. Write for Catalog and Prices on Conversion Burners, Appliance Burners and Regulators.

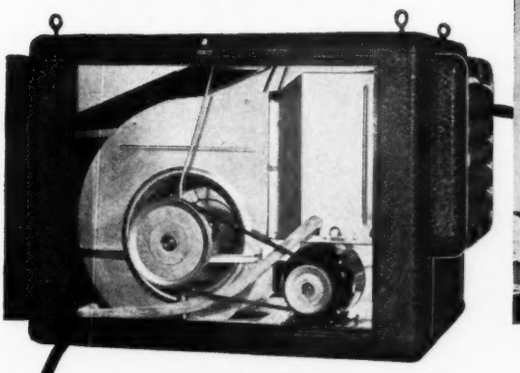
THE BARBER GAS BURNER COMPANY, 3704 Superior Avenue, Cleveland, Ohio

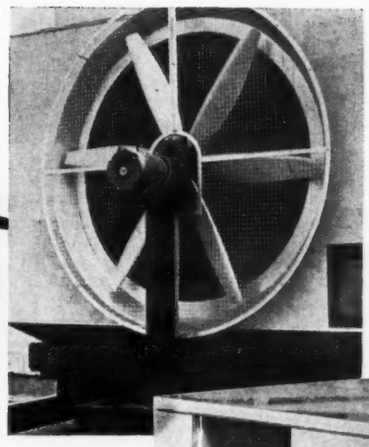
Address Michigan Inquiries to The Barber Gas Burner Co. of Michigan, 4475 Cass Ave., Detroit



BARBER *Automatic* JET GAS BURNERS

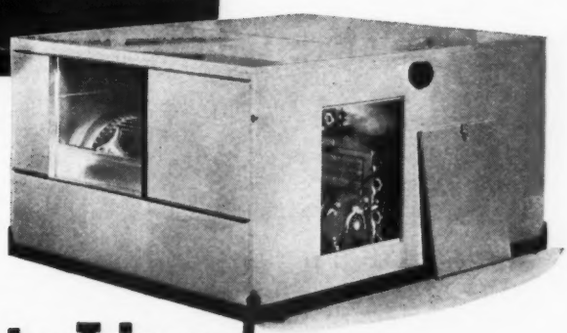
Below—Century Split Phase Cushion Mounted Motor driving a blower.





At left — Century 20 horsepower Splash Proof Motor driving a cooling tower fan.

Below — Century one horsepower Repulsion Start Induction Motor driving a blower on a room cooler.



Century

Offers You a Complete Line of Electric Motors

for better air conditioning and refrigeration performance

Century Cushion Base Capacitor Motor.

☆ The *right* motor is an important part of your sales and manufacturing program. For you can't promise to deliver the most effective, economical performance from your installations unless they are equipped with the correct motor drive.

There are Century Motors to accurately meet the starting, accelerating and operating demands of the various parts of all air conditioning installations — meeting these requirements smoothly, quietly and efficiently. They are available in the widest variety of types and sizes—fractional and integral horsepower.

Look to the Century complete line of electric motors to aid you in obtaining top performance from every type of installation—motors that meet the specialized demands of blowers and fans, pumps, refrigeration compressors, unit heaters and coolers, etc.

31 Century Branch offices want to serve you. Permit your Century Motor Specialist to consult with you about your motor problems.

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Mo.
Offices and Stock Points in Principal Cities.

Century MOTORS

One of the Largest Exclusive Motor Manufacturers in the World

ROOFLOY*

Roofloy sheets are shipped rolled in heavy cardboard containers or flat in crates.

NEW SHEET LEAD ROOFING WITH TEN TIMES THE CREEP RESISTANCE OF ORDINARY SHEET LEAD

● Roofloy is a remarkable new development, made of the purest pig lead alloyed with important minor constituents to form a far superior kind of lead roofing. It is fully protected by patents, and offers you many advantages never before available.

THINNER SHEETS. Because Roofloy has ten times the creep resistance of ordinary commercial sheet lead, as well as higher tensile strength, it can be made thinner than commercial lead sheets. The result—lighter weight, lower cost, easier application.

LASTING STRENGTH. Lead roofing has proved to be almost everlasting, having served for as long as 500 years on many of Europe's famous buildings. Roofloy is stronger and better than these older materials because of its resistance to "creep"—which was the one weakness of lead roofing in the past.

ECONOMY. The price of Roofloy is little or no higher than that of other non-ferrous roofing metals. It compares favorably with what you have paid for 16 oz. sheet copper, for instance.

CORROSION-RESISTANT. Roofloy lead roofing is relatively immune to corrosion, even in the most acid industrial atmospheres. It never stains the other building materials around it. And it soon takes on a beautiful blue-gray antique color which adds distinction to any building, the color improving with age. For full information on Roofloy see current Sweet's Catalogue File or write direct to us.

PROMPT DELIVERIES

With copper and so many other materials now restricted for general use, Roofloy enables you to fill your customers' needs with an improved product —not merely a substitute.

REVERE

COPPER AND BRASS INCORPORATED

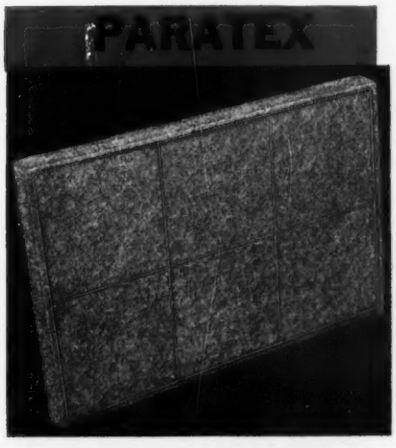
Executive Offices: 230 Park Avenue New York

MILLS: BALTIMORE, MD. · TAUNTON, MASS. · NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL.

*Roofloy is the trade mark designating lead sheet rolled from a particular composition protected by U. S. Patent No. 2,142,835 of American Smelting and Refining Co.

LABORATORY FACTS *Make You Faster, Bigger Profits on* BLOCKSOM FILTERS

The Throwaway Type



The Permanent Type

Constant research and development are the means by which we keep Blocksom Filters out in front of the field. The long life, economy and dependability of these filters is proved beyond the shadow of a doubt to enable you to give your customers consistently superior filter performance.

Check over the facts below about Blocksom filters . . . they'll be your choice from now on!

THE AXIOM

A throwaway type filter, flameproof, low resistance, high efficiency, and which catches practically all of the dust, dirt, and pollen.

The AXIOM is lower in cost, thus insuring you larger profits.

Performance, not words, are the deciding factor. We sincerely believe our filters offer you the opportunity for high quality at very low cost. Over fifteen years experience with constant research make our present AXIOM and PARATEX Air Filters possible.

THE PARATEX

A truly permanent type filter, even careless handling does not damage the filter. Cannot break, chip, rust, or crack. No messy oiling necessary. Cleaned by merely spraying with a stream of water. Resistance and efficiency can be tailor-made to your requirements at no additional cost.

Both the AXIOM and PARATEX are used in Government munition plants and military camps; they have to be good to receive this acceptance.

The air filter season is here—now—take the advantage it offers for added profits with the AXIOM and PARATEX Air Filters.

BLOCKSOM & COMPANY MICHIGAN CITY INDIANA

IN THESE TIMES
Cooperation Counts

The process of building a successful business may begin with the posting of an "Open for Business" sign, but you and we know that is the easiest part. Success in the sheet metal industry, like any other, is attained through perseverance, initiative, fair play and—last but not least—good materials and workmanship.

We, at OSBORN'S, derive much satisfaction from the knowledge that our service and products have had a part in the progress of innumerable sheet metal shops. And, of equal importance, we are deeply grateful to these same shop owners for their loyalty to and confidence in us.

Today, when the true value of cooperation counts for more than it does in normal times, we thank you for the fine spirit of understanding of our mutual problems which you are showing. To add that we will do everything possible to merit your confidence is probably unnecessary.

COAL, OIL AND GAS FIRED FURNACES

DAMPER CONTROLS

REGISTERS

FURNACE PIPE AND FITTINGS

BLOWERS AND FILTERS

HUMIDIFIERS

FURNACE CEMENTS

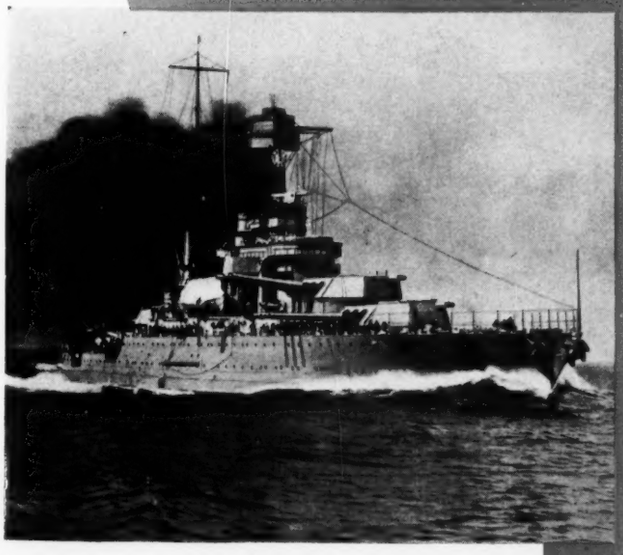
VACUUM FURNACE CLEANERS

THE J. M. & L. A.
OSBORN Co
CLEVELAND, OHIO
BUFFALO • CINCINNATI • DETROIT
Manufacturers—Distributors of Metals and Metal Products

A DEPENDABLE SOURCE OF SUPPLY FOR 82 YEARS

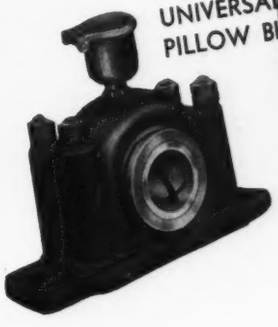
PREPARED?

FOR EVERY BEARING REQUIREMENT, USE *Randall* PILLOW BLOCKS

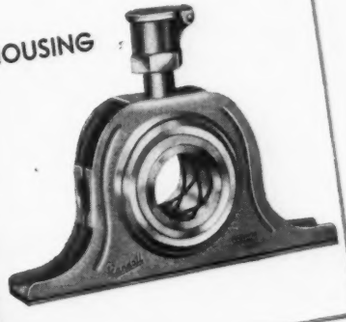


FLANGE OR SIDE MOUNT PILLOW BLOCK

UNIVERSAL PILLOW BLOCK



ONE-PIECE STEEL HOUSING PILLOW BLOCK



★ In today's sweating, accelerating industry, dependable equipment is vitally important in preparation for the serious job ahead.

★ To assure continuous dependable performance use Randall Pillow Blocks on your equipment. As evidence of their complete reliability, *Randalls are used on more air-handling units than any other.*

★ Randalls are self-lubricating and self-aligning. They will give a lifetime of quiet, trouble-free service. Economical in first cost and in maintenance, they need only minimum attention. The majority of manufacturers standardize on this "proven" pillow block because of their proved assurance of complete freedom from bearing failures.

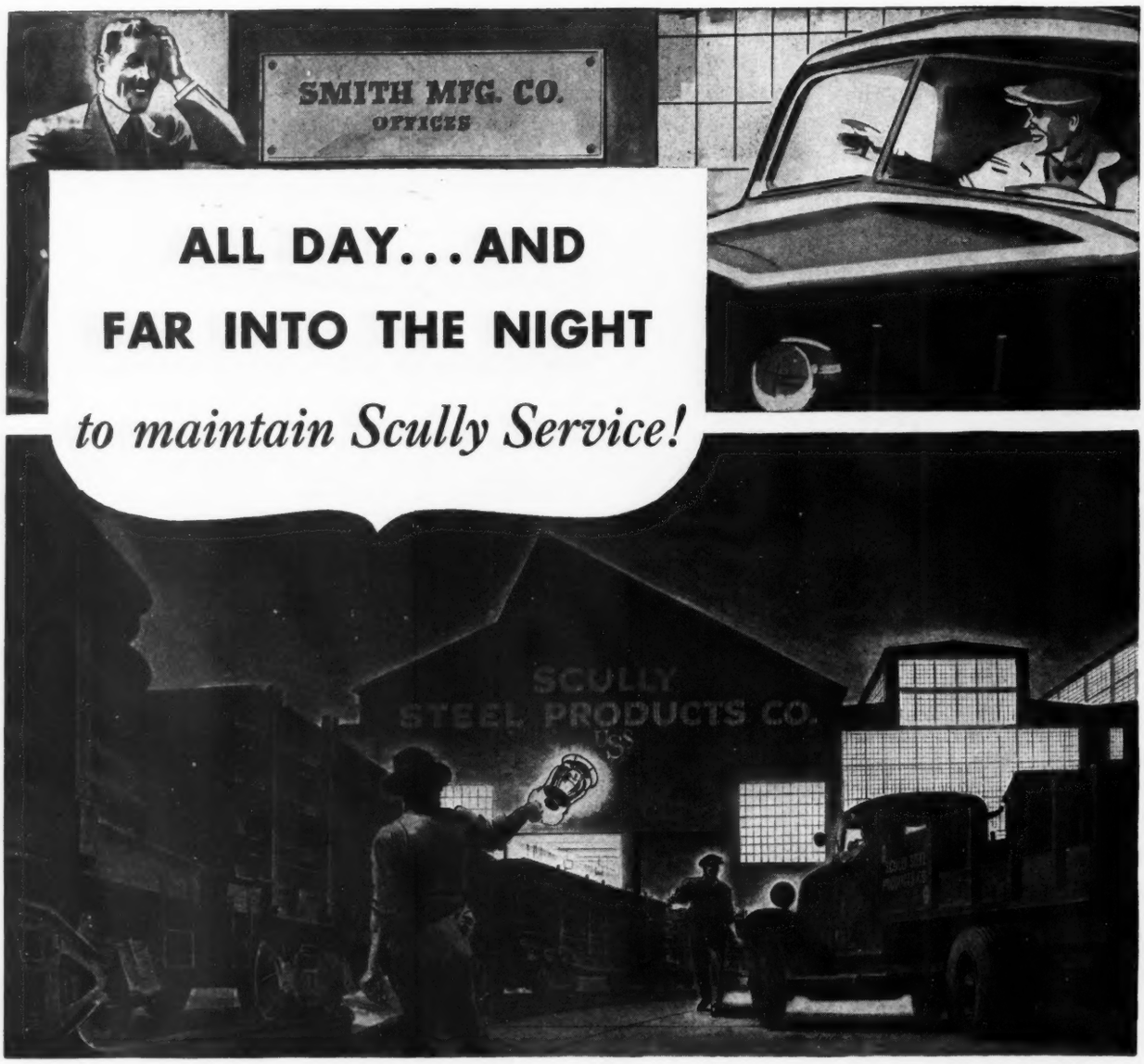
★ Be prepared! Write today for free catalog showing the complete line of *dependable* Randall Pillow Blocks.

Representatives Carrying Stocks

C. W. Marwedel, San Francisco, Cal.
Salt Lake Hardware Co., Salt Lake City, Utah
Edward P. Maltby Co., Los Angeles, Cal.
Tek Bearing Co., 177 Lafayette, New York City, 1192 Commonwealth Ave., Boston, Mass.

RANDALL GRAPHITE PRODUCTS CORPORATION

DEPT. 911 — 609 W. LAKE ST. — CHICAGO, ILL.



THIS business of working day and night is no mere talk! Every one of the eight Scully warehouses is on the job at all hours to provide the type of service that has made the Scully name famous. Do you need steel, steel products, copper, brass, tools, equipment or machinery? Perhaps we can help you out. We can still make immediate shipment of many items. Call us. You will get prompt, courteous attention—and every bit of co-operation we are able to give.

And if you don't have a copy of the handy 1941 Scully Stock List and Reference Book, ask for one — it's free.

SCULLY STEEL PRODUCTS COMPANY

Distributors of Steel, Steel Products, Copper and Brass

Warehouses at CHICAGO
ST. PAUL · MINNEAPOLIS
NEWARK, N.J.

The Mark of Quality →

USS Scully Service

CLEVELAND · PITTSBURGH
BOSTON · BALTIMORE
ST. LOUIS

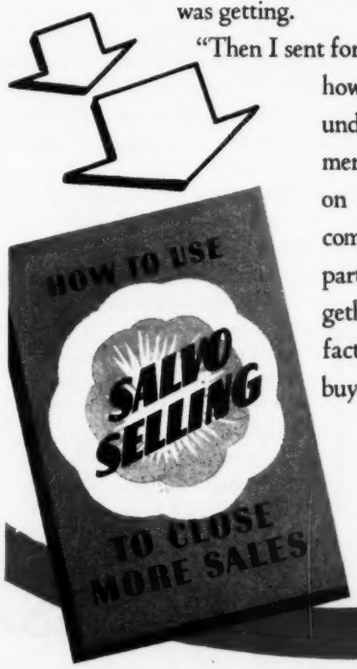
← *The Mark of Service*

UNITED STATES STEEL

"I WAS A SECOND-STORY MAN"

"I never realized how many sales I missed by having to tell a second sales story to every prospect. Bringing in another name on the controls always made it harder for him to know what kind of an automatic heating job he was getting.

"Then I sent for a copy of 'Salvo Selling' and learned how much simpler it is to sell everything under the one name of the firing equipment manufacturer. Now I concentrate on only one story, one name and one complete product—controls and all. The parts are designed and built to work together. Unified responsibility for satisfactory performance makes a hit with the buyer."



Your selling technique will be improved after you have read this free book "Salvo Selling." The ideas in it were discovered—and are being used right now—by some of the leading automatic heating salesmen in America. Use a postcard or a letter to send for your copy. You can read it in a few minutes, but what you learn will help you all your life.

There's a New Leader in the Control Field

PERFEX CORPORATION

500 W. Oklahoma Avenue, Milwaukee, Wisconsin

Figurin' the Angles

What smart men do in these times to make money with Fiberglas* Dust-Stop* Air Filters

SAY! HAVE YOU NOTICED HOW WELL MANUFACTURERS HAVE MAINTAINED FURNACE DELIVERIES?
YOU BET I HAVE! BUT I'M GUNNING FOR MORE REPLACEMENT JOBS JUST THE SAME!
Westcott

Dust-Stop's Free Sales Plan Helps You Do It!

IN DAYS LIKE THESE you've got to look ahead!

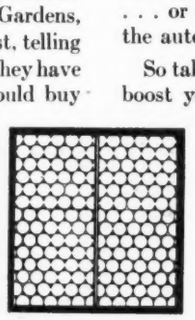
Defense shortages may hit the metal trade. So if you're smart, you'll start pushing your furnace repairing, cleaning, and filter replacement business *now!* Why? Because it means good money for you! And in areas where a fuel shortage threatens, it will help your customers make the saving on fuel — as suggested by the Government.

The first problem is how to find new prospects. That's where Dust-Stop's free sales plan steps in!

You just can't miss with free mailing pieces . . . newspaper mats, postcards . . . radio scripts . . . reminder labels! And what's more you have your name and address imprinted on 'em without it costing you a cent!

In addition to getting the biggest set of free dealer helps in the filter field, you'll also be backed up by national advertising! Dust-Stops advertise in American Home, Better Homes and Gardens, Life, and Saturday Evening Post, telling householders about filters, how they have to change them, why they should buy *Dust-Stops*—and where to buy them (from you, of course!)

The profit on every single sale is not to be sneezed at! Dust-Stops pay you about $1.50 to $2.00 each furnace, each year. Multiply these profits by 200 to 300 furnaces . . . for the number of years a furnace lasts. You'll see you've got something there!



Dust-Stops offer still another big help! They give you the chance to . . . build good will . . . to contact prospects . . . line-up furnace cleaning or repair jobs . . . or other profitable work adjusting the automatic firing unit or oil burner.

So take advantage of this swell way to boost your filter replacement business . . . today! Write for Dust-Stop's free sales plan. Tell your manufacturer or jobber to send it to you right away!

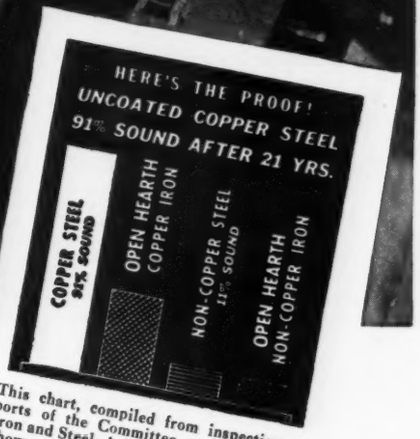
Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas, Canada, Ltd., Oshawa, Ontario.

FIBERGLAS* DUSTOP* AIR FILTERS

T.M. Reg. U.S. Pat. Off.

THEY FABRICATE EASILY INTO DIFFICULT SHAPES

Save time and money on the job!



This chart, compiled from inspection reports of the Committee on Corrosion of Iron and Steel, A.S.T.M. Proceedings 1937, shows results of atmospheric corrosion tests carried on at Annapolis, Md., from 1916 to 1936. After 21 years' exposure, 91% of COPPER STEEL sheets remained "sound" (unperforated). Other materials were decidedly inferior.

MANY leading sheet metal workers have built up a sound reputation for their work by using only U·S·S Copper Steel Sheets. They all agree that you can depend on U·S·S Copper Steel Sheets to give you a satisfactory job every time. One big reason is their easy workability — you can work faster with the least trouble on a job. Difficult shapes and angles are easily formed — you get true bends, tight seams and neat joints. The high quality of longer-lasting U·S·S Copper Steel Sheets is uniform — in gage, size and working characteristics.

On any job you figure, you can assure your customers that U·S·S Copper Steel Sheets will give them 2 to 3 times more atmospheric corrosion resistance than plain steel sheets. The added copper makes this possible, yet the extra cost of U·S·S Copper Steel Sheets is so low that it makes but little difference in the completed installation.

U·S·S Copper Steel Sheets, both galvanized and black, are available through our distributors in all important cities. Write for our booklet of helpful information.

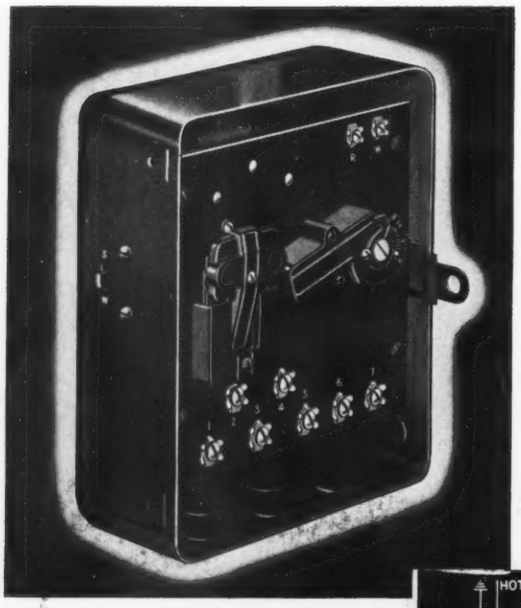
U·S·S COPPER STEEL SHEETS

CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*

Scully Steel Products Company, Chicago, *Warehouse Distributors* · United States Steel Export Company, New York

UNITED STATES STEEL

Try this Complete Control System on a Stoker Forced Warm Air Job



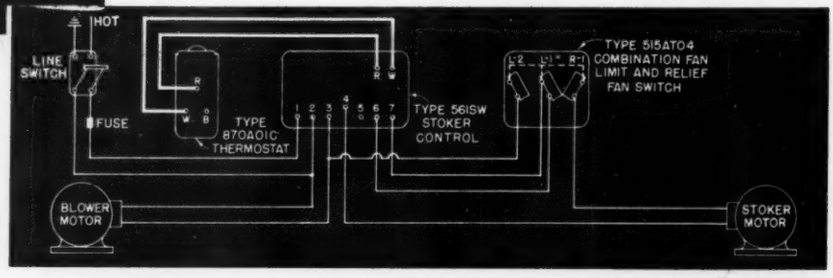
Only 3 controls for positive year-around regulation of stoker and furnace fan operation

Hard to believe, but it's true! With nothing more than these three Penn-built controls, you can provide your forced warm air customers with completely automatic control of the stoker and the furnace blower in the winter, at the command of the heat anticipating room thermostat. *Then*, merely by flicking a "summer-winter" switch built into the Timer Relay, those same customers can operate the furnace fan in the summer for air circulation, under control of the same heating thermostat. This is truly *DeLuxe* control of stoker fired forced warm air systems. And, from the installation man's standpoint, the whole job is done with only three controls—simple to install . . . simple to wire, as shown below. This kind of an installation takes you out of the "price" market . . . helps you make money out of the stoker business. Show forced warm air prospects the advantages of this year-around system for more sales and more profits.

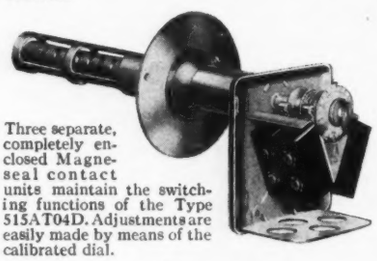
As easy to install as an ordinary gravity job

The key to this marvellously simple forced warm air control system is the new Penn Type 561SW combination Stoker Timer Relay and Furnace Fan Relay. In the winter, this unit provides hold-fire operation of stoker, and also simultaneous fan and stoker operation at the command of the Type 870 heat anticipating room thermostat. With the selector switch thrown to "summer" position, this unit then provides summer fan operation, when house temperature goes above the setting of the *same* room thermostat. You have only three controls to install with the simple wiring shown at the right. Your installation men and your customers will both praise this system. Write for catalog information on these Penn-built controls.

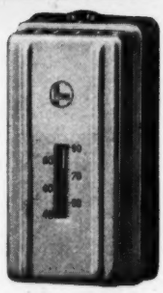
Penn Electric Switch Co., Goshen, Indiana. In Canada: Powerlite Devices, Ltd., Penn Electric Switch Division, Toronto, Ont. Export: 100 Varick St., New York City. Branches, representatives and distributors in principal cities.



ONE BONNET CONTROL installation is all that is required with this system, because of the triple-duty Type 515AT04D combination fan, limit and relief fan control. This bonnet control provides low limit fan regulation to prevent circulation of cool air in the winter; limit switch operation to shut down the stoker in the event of excessively high bonnet temperature; and high limit or relief fan operation to dissipate bonnet heat in the event of temperature over-run.



Three separate, completely enclosed Magneseal contact units maintain the switching functions of the Type 515AT04D. Adjustments are easily made by means of the calibrated dial.



KEY TO COMFORT with this *DeLuxe* forced warm air control system is the Type 870 internally heat actuated thermostat. This low voltage thermostat is connected to the Type 561SW Stoker Air Conditioning Relay to positively control both stoker and blower operation. Winter temperatures are maintained within a fraction of a degree. In the summer, this same thermostat provides furnace fan operation when temperatures rise above its setting, shutting down the fan when air circulation is not required for comfort. With this same thermostat, automatic Day-Nite Control may be added at any time, with the Penn Type 772 Tem-Clock.

●

Manufacturers and installers of stoker fired forced warm air furnaces will find this simple, three-piece control system an important aid in closing sales at profitable figures. Try it on your next prospect.

★

More information on what Penn Controls will do for you—One of a Series.

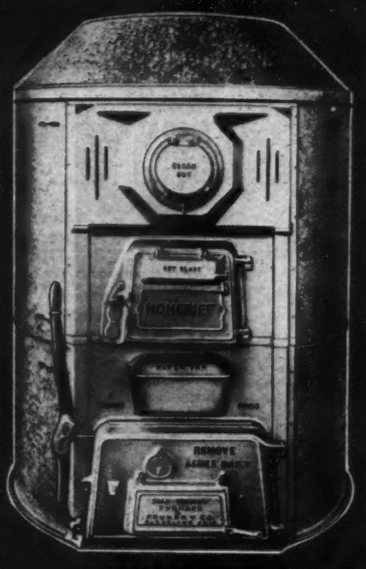
PENN

Penn-Built Controls for Many Applications

Thermostats, Bonnet Controls, Ductstats, Fire Protection Controls, Water Temperature Controls, Boiler Pressure Controls, Boiler Water Level Controls, Humidistats, Stack Switches, Stoker Timer Relays, Solenoid Gas Valves, General Purpose Relays, Solenoid Refrigerant and Water Valves, Refrigeration Pressure and Temperature Controls, Water Valves, Pump Controls, Air Compressor Controls, Air Volume Controls, Line Starters.

NEW...JUST OUT!

A Great Book



MONCRIEF SERIES C

...ABOUT A GREAT FURNACE

This Book Helps You Sell

Here is a piece of strong selling literature for the use of all Moncrief dealers. This large illustrated 12-page book in two colors is impressive and convincing. The story of the points of excellence of the Moncrief Series C line are forcefully and logically presented. Study this book yourself. It will help you do a better job selling cast furnaces in general and the Series C in particular. And after you have made a sales call, it will hold the fort and keep your prospect sold on the good Series C.

Send for a copy and see how Moncrief equips its dealers with comprehensive literature to boost sales.

Send for a Copy

FREE TO YOU

Learn all that the Series C gives the home owner in superior features and plus value —Points that help you make sales to your profit.

THE HENRY FURNACE & FOUNDRY CO.
3473 E. 49th ST., CLEVELAND, OHIO

Send me copy of new Series C book and details of the Moncrief Proposition.

Name .....

Firm .....

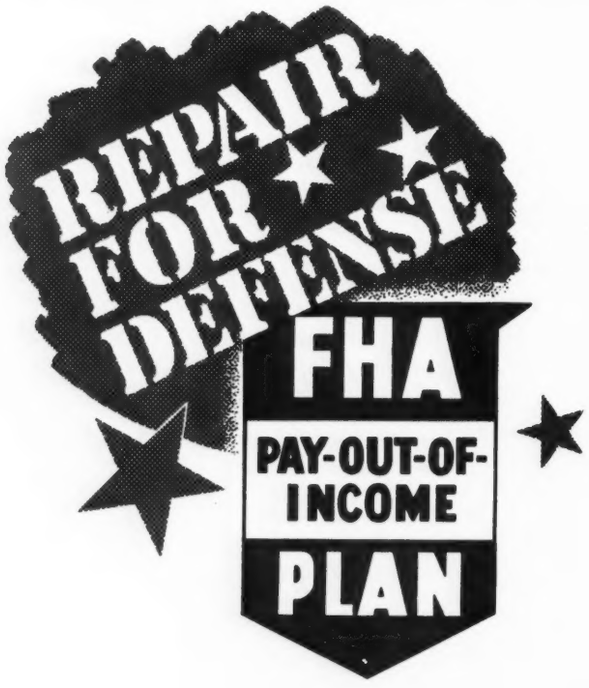
Street No. .....

City ..... State.....

MONCRIEF *Series C Cast* FURNACE

PROPERTY PRESERVATION

shares spotlight as defense aid in FHA campaign



Inadequate OR *Excessive* HUMIDIFICATION HAS NO PLACE IN THAT PICTURE!

You'll hear much about the new F.H.A. "Repair for Defense" campaign this fall. Newspapers, magazines, radio, billboards . . . every medium will carry to homeowners the message that *defense calls for home repairs.* Property preservation, too, will be stressed, and certainly dry, hot air has no place in that picture. For, heat without proper humidification soon dries out, splits and weakens building joists and studding. Raw heat extracts moisture from woodwork and causes it to pull apart.

The appeal to preserve property . . . the necessity of considering proper humidification as a defense aid . . . goes even further. Furniture and furnishings deteriorate rapidly in artificially heated air; to prolong their life with moisture-conditioning is a worthy contribution at a time when manpower and materials must be utilized for essential needs in this emergency.

Let homeowners in your locality know you are prepared to tie in with this campaign . . . that you can provide measured moisture for property preservation with the heat-controlled THERMO-DRIP humidifier.

THERMO-DRIP
Automatic **HUMIDIFIER**

★

No greater assurance of superior performance can be given humidifier prospects than the THERMO-DRIP feed valve operation is governed by furnace heat—the pan does not receive any more water than a specific degree of heat demands. And the drip feed is automatically accelerated or throttled as bonnet temperatures fluctuate.

Ask Your Jobber or Write Us for Complete Details

AUTOMATIC HUMIDIFIER COMPANY

18TH & MAIN STREETS • CEDAR FALLS, IOWA

NORCO PRODUCTS LEAD THE WAY in home defense and economy!

"Repair for Home Protection!" That is the new watchword for home owners and warm air heating dealers everywhere. In order to conserve needed materials and equipment for defense purposes the government has launched a big drive to sell the idea of repairing home heating equipment and now, more than ever, Northwestern Stove Repair Company products are needed to help the warm air heating dealer do his part in the defense program.

Join this campaign. You can help the vital National Defense Program along by recommending the repair or replacement of worn out, inefficient furnaces and equipment which prevent the home owner from getting the maximum efficiency from his fuel. At the same time you will be able to get your share of the tremendous extra profits which will be there for every furnace man willing to go after them.

Norco products lead the way in this big drive for home defense and efficient, economical heating plant operation. Norco stocks hundreds of repair parts for heating equipment of all kinds. We can fill your order promptly. Write us your needs today let Norco fill all your repair parts needs.

SELL NORCO PRODUCTS *NOW!*

Now is the time to join the big government drive on home and heating plant repairs. Norco products will help you help your customers to maintain better and more efficient heating plants this winter. Order your repair parts from Norco now.

NORTHWESTERN STOVE REPAIR CO.

MANUFACTURERS OF STOVE, FURNACE AND BOILER REPAIRS

662 WEST ROOSEVELT ROAD CHICAGO, ILL.

QUIET-AIR *Blowers* GIVE DEALERS MORE!

1 EXCLUSIVE QUALITY FEATURES BUILD SALES

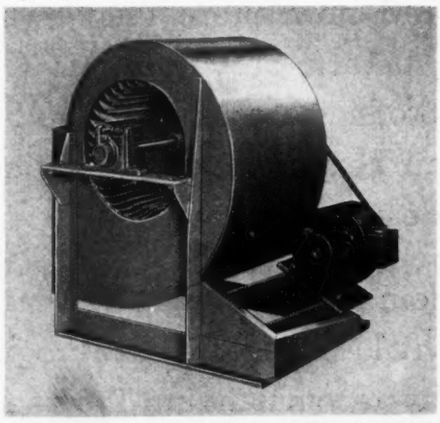
ONLY QUIET-AIR offers so many exclusive quality features in a blower:

1. Patented bearings are UNCONDITIONALLY GUARANTEED for 5 years—self-aligning, self-lubricating.
2. Super-capacity fan moves more air than others a size larger. Amazingly quiet.
3. Patented motor mounting automatically adjusts belt tension.
4. Improved filtering provides greater cleanliness.

• Silent, powerful, economical QUIET-AIR Blowers are styled for instant eye-appeal. Compare their capacity with others a size larger!

2 DIRECT-FROM-FACTORY LOW PRICES

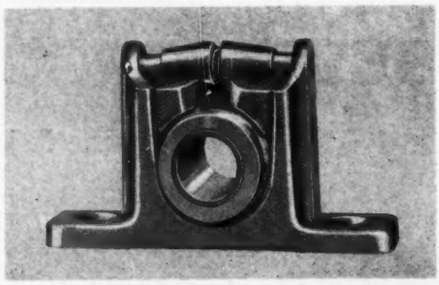
Because QUIET AIR Blowers are sold direct from factory to you, you can sell them at prices competitive with ordinary blowers. BUT—because there's no middleman, YOU MAKE MORE PROFIT. *There's been no increase in QUIET-AIR prices. Prompt delivery.*



• Patented motor mounting AUTOMATICALLY maintains proper belt tension. This feature alone eliminates many service calls. Super-capacity fan runs smooth and silent.

3 HIGH-QUALITY, SERVICE-FREE CONSTRUCTION

You get an extra break with QUIET-AIR because of its positive freedom from servicing. Heavy construction and high quality guarantees a long, trouble-free life. Because of QUIET-AIR's exclusive features—self-adjusting belt and self-aligning, self-lubricating bearings—YOU MAKE AND KEEP YOUR PROFIT.



• Exclusive patented bearings are positively guaranteed for 5 years without attention. No oiling, adjustment or tightening. No rubber to deteriorate.

Send the coupon today—that's all it will cost you to get all the facts on QUIET-AIR. There's no obligation. We'll send full information and YOU BE THE JUDGE.

CLIP AND MAIL

Maple City Stamping Co.
Peoria, Illinois

Send me full information on QUIET-AIR Blowers. No obligation.

NAME_____

ADDRESS_____ STATE_____

CITY_____

MAPLE CITY STAMPING CO. PEORIA, ILLINOIS

THE THERMOSTAT IS THE

Commander

OF THE HEATING SYSTEM

Like an army in the field, no heating system can be better than its commander, the thermostat. A good system, well commanded, delivers satisfaction. A good system, poorly commanded, can be nothing but a disappointment.

The Detroit 411 Compensated Thermostat for the control of heating systems has proved its superiority in sensitivity and durability. It has eliminated the discomfort of "Cold 70" and the objectionable and unnecessary cost of overheating.

The compensating preheater element of the 411 need not be replaced to meet variations in local heating requirements. A simple screw driver adjustment is all that is needed to take care of any situation.

The 411 is also available in the day and night type, the turn-down being accomplished by the ingenious use of a second preheater which greatly simplifies thermostat construction and holds its cost to a minimum.

A valuable advantage in the use of the 411, sometimes overlooked, is the fact that the same manufacturer also makes a complete line of controls used elsewhere in the heating system. Thus, complete coordination with the thermostat and perfect harmony is secured throughout system operation. When all Detroit controls are used you avoid divided responsibility.

DETROIT LUBRICATOR COMPANY

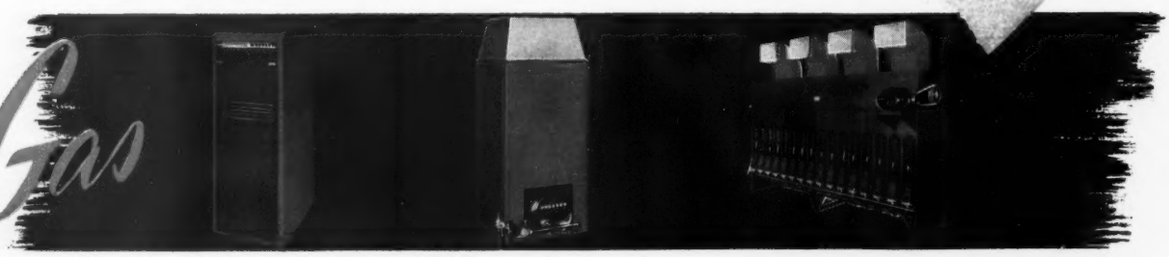
General Offices: DETROIT, MICHIGAN

Canadian Representatives: Railway & Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

MUELLER'S 1941 *Parade of Progress*

Here's what Mueller has been doing — to keep you out in front as a successful furnace dealer

Gas



New MUELLER SERIES CVP ALL-CAST-IRON GAS-FIRED WINTER AIR CONDITIONER. Small, compact, cabinet type. Complete, uniquely designed line.

New MUELLER SERIES G90 GAS-FIRED GRAVITY FURNACE. Highly efficient up-draft design. Round or square casing.

New MUELLER GAS-FIRED UNIT HEATER. Exclusive Heat-speeder sections. For commercial and industrial installations.

Oil

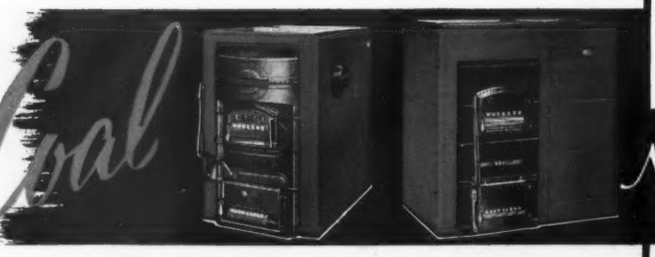
New MUELLER SERIES OVP VERTICAL OIL-FIRED WINTER AIR CONDITIONER. For small and moderate size home market.

New MUELLER SERIES OHP HORIZONTAL OIL-FIRED WINTER AIR CONDITIONER. Designed especially for basement installations.

By constantly developing new equipment, Mueller has put you in a position to make money by *meeting* TODAY'S *demands*. Most of your customers can now afford the added comfort, convenience, healthfulness of winter air conditioning. You can go after a real volume of business on modern automatic equipment for any fuel, in homes of any size or class — at a practical price. And you can depend on the Mueller name, Mueller advertising, and Mueller's attractive designs to help you sell. Mueller quality insures your reputation. Tie up with Mueller — and go places. Ask for Mueller's illustrated literature and the name of the Mueller representative nearest you . . . *L. J. Mueller Furnace Company, 2010 West Oklahoma Avenue, Milwaukee, Wisconsin.*

D-19

Coal



New MUELLER SERIES FB COAL-FIRED WINTER AIR CONDITIONER. All cast-iron construction. All parts completely enclosed in one cabinet.

New MUELLER SERIES P400 COAL-FIRED WINTER AIR CONDITIONER. Steel construction. All parts completely enclosed in one cabinet.

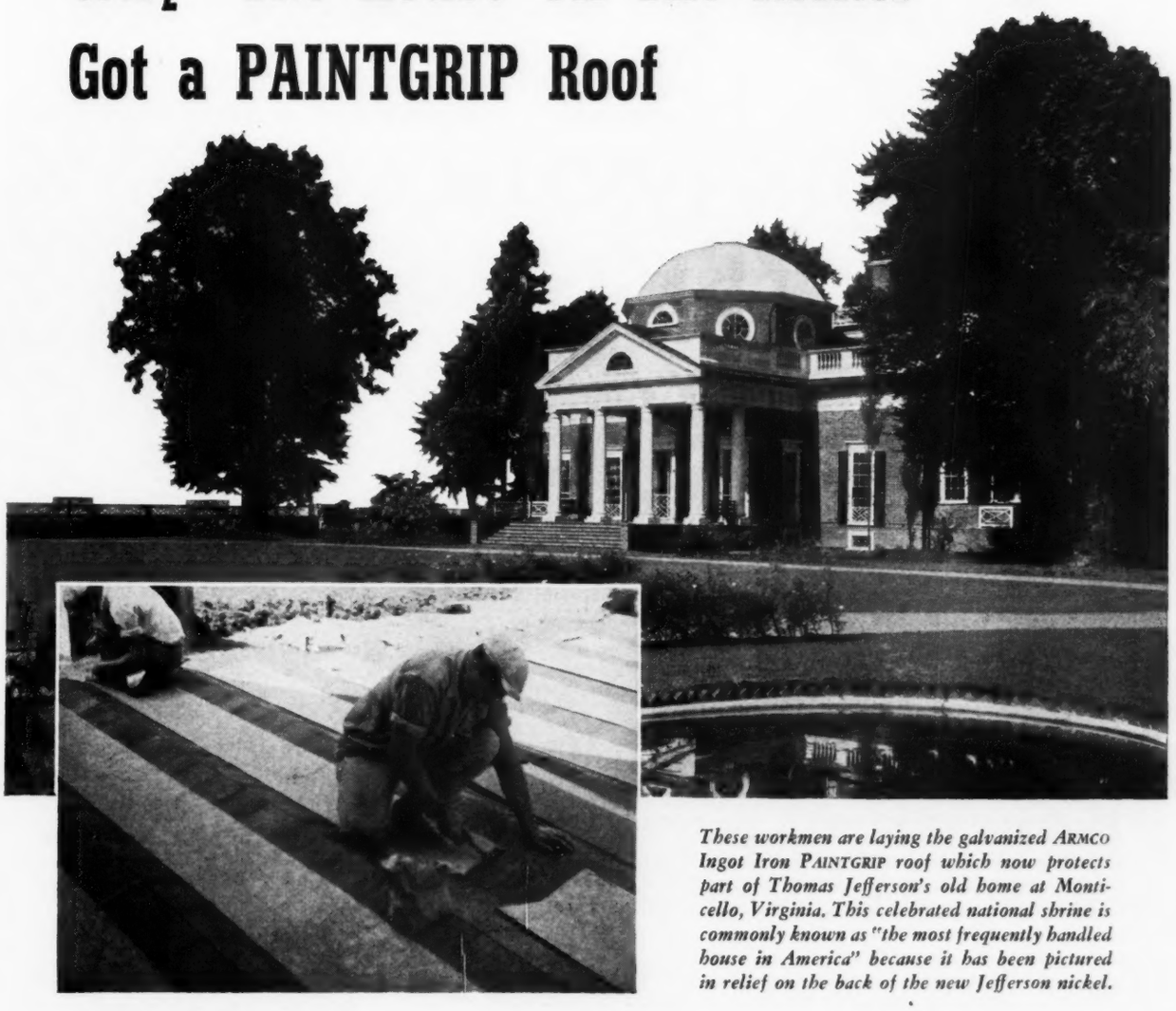
New SEASONSTAT

All Mueller automatic equipment may now be obtained with this new control which revolutionizes automatic winter air conditioning.

MUELLER *Milwaukee*

HEATING AND AIR CONDITIONING

Why "The House On The Nickel" Got a PAINTGRIP Roof



These workmen are laying the galvanized ARMCO *Ingot Iron* PAINTGRIP *roof which now protects part of Thomas Jefferson's old home at Monticello, Virginia. This celebrated national shrine is commonly known as "the most frequently handled house in America" because it has been pictured in relief on the back of the new Jefferson nickel.*

Shortly after Thomas Jefferson was elected president in 1800, he wrote this to the superintendent of his home in Monticello, Virginia:

"I conclude absolutely to cover my terras (terrace) with sheet iron . . . It is the lightest and most durable cover in the world. We know it will last 100 years, and how much more we do not know."

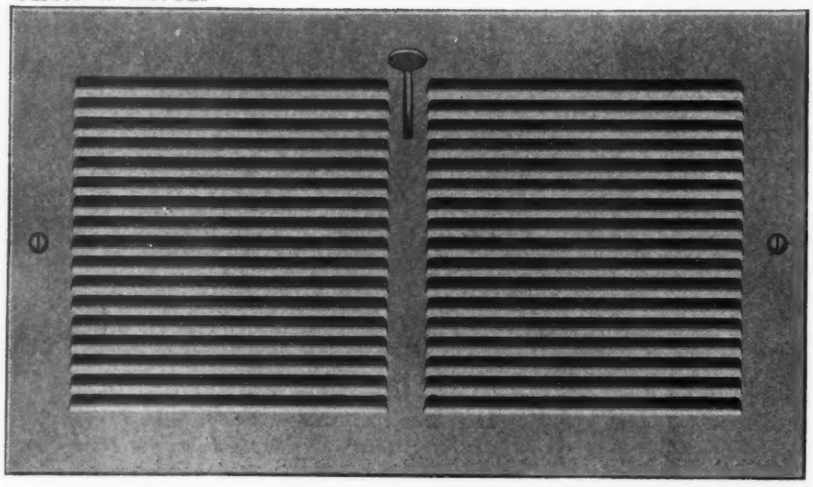
Time shows the wisdom of Jefferson's decision; for when this grand old home was restored almost a century and a half later, parts of the original roof were intact. Architect Milton L. Grigg must have been impressed, because he specified the modern durable iron for the new roof—galvanized ARMCO Ingot Iron PAINTGRIP sheets.

Galvanized ARMCO Ingot Iron has the longest actual service record of all low-cost iron or steel sheets—and more than 400 exposure tests show that the life of good paint on PAINTGRIP is *three times* longer than on ordinary galvanized metal. Together they give ample insurance against early paint failure and rusting.

You and your customers will be just as proud of the work you do with galvanized ARMCO Ingot Iron PAINTGRIP sheets as Architect Grigg and the contractor who did the roofing work on Monticello. You can be confident, too, of a durable job. ARMCO PAINTGRIP works and solders as readily as any other good galvanized sheet. Write for helpful shop facts and a *free* scratch sample. The American Rolling Mill Company, 2621 Curtis St., Middletown, Ohio.

GALVANIZED ARMCO **ARMCO PAINTGRIP SHEETS**

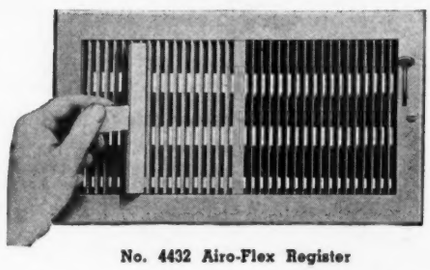
Adjustable AIR CONDITIONING REGISTERS FOR *All Uses!*



No. 7032 Airo-Flex Register

Auer makes a complete line of registers, intakes, and grilles for warm air heating and for all air conditioning requirements. Auer Register Book 41 sent on request. Separate Catalog "G" also available on Auer Grilles.

When you require an air conditioning register of moderate cost, having adjustability for downward air flow—remember that the Auer Airo-Flex "7000" line fits the case, and is unexcelled at the price. You will agree that when you install a high-grade heating unit, you cannot risk good results on the job by using anything other than an efficient register of substantial quality. The Airo-Flex "7000" is a single louvre register of simple construction, well built in every detail. Grille bars are easily adjusted with turning tool—up, straight, or to a downward range of 22°. This register, easy to install, in appearance a credit to any job, assuring satisfactory results, and costing only a trifle more than the most inexpensive register, is outstanding in its popularity today.



No. 4432 Airo-Flex Register

For a multi-louvre register with back blades controlling up and down flow, and grille bars adjustable for sideway deflection, we recommend the Auer Airo-Flex "4000" line, which has ALL adjustable features of many higher priced registers.

THE AUER REGISTER COMPANY

3608 Payne Avenue — Cleveland, Ohio

AUER REGISTERS

& GRILLES · For Air Conditioning *and* Gravity

CHRYSLER AIRTEMP DEALERS MAKE MONEY"

Selling Summer and Winter Air Conditioning

Griffith-Consumers Co. installed 137 3 h.p. and 5 h.p. packaged cooling units in the past 12 months! Standing in front of the United States Navy and Munitions Building—which they air conditioned with fourteen 75 h.p. Airtemp radial compressors—are J. B. Neely, Airtemp Engineer; H. R. Dulany, President and W. L. Phillips, Chief Engineer of Griffith-Consumers Co.; and R. F. Rosenbach, Chief Engineer of Mehring and Hanson Co., contractors.

GRIFFITH-CONSUMERS COMPANY

August 13, 1941.

Mr. D. W. Russell, President,
Airtemp Division,
Chrysler Corporation,
Dayton, Ohio.

Dear Mr. Russell,

1 We believe the Chrysler Airtemp line has helped us become leaders in Washington for oil burning equipment and for summer and winter air conditioning. We are gratified with the way both the heating and cooling equipment have been received by hundreds of Washington homes and institutions.

2 The Chrysler Airtemp factory and organization have given us the utmost cooperation. Our orders have received personal attention and the equipment has been delivered without delay.

3 The Chrysler Airtemp field organization has been most helpful in aiding our representatives with the various installation and service problems. We find, too, that the public understands the name Chrysler spells excellence of mechanical design and has been a great help to our sales organization.

4 In closing may I say that we hope the happy and profitable associations which we have had with your organization may continue for many years to come.

Very truly,
GRIFFITH-CONSUMERS COMPANY,
H R Dulany Jr
H. Rozier Dulany,
President.

HRD/slc.

Every air-conditioning dealer will be interested in these statements from the above letter from R. H. Dulany, President, Griffith-Consumer Co.

1. "We believe the Chrysler Airtemp line has helped us become leaders in Washington for oil-burning equipment and for summer and winter air conditioning."
2. "The Chrysler Airtemp factory and organization have given us the utmost cooperation . . . equipment has been delivered without delay."
3. "The Chrysler Airtemp field organization has been most helpful in aiding our representatives with the various installation and service problems."
4. "That the public understands the name 'Chrysler' means excellence of mechanical design, has been a great help to our sales organization."

CHRYSLER AIRTEMP

AIRTEMP DIVISION OF CHRYSLER CORPORATION • DAYTON, OHIO

GRIFFITH-CONSUMERS CO.

AIRTEMP WASHINGTON DEALER

Sold 1003 Units In 12 Months!

● Griffith-Consumers Co., Washington, D. C., has been a Chrysler Airtemp dealer since May, 1937. For more than four years, this alert, successful organization has sold Airtemp heating and cooling equipment—built a fine annual volume of business. Says Charles H. St. John, Vice President of Griffith-Consumers Co.—"As we expected, we found the public's acceptance of the name 'Chrysler' reduced sales resistance. Our sales of the Chrysler Airtemp line in the past four years indicate the extent to which the public has accepted Chrysler products."

In the past 12 months, Griffith-Consumers Co. has sold nearly $400,000 worth of Airtemp equipment—retail installations totaling over a thousand units!

Read President Dulany's Letter . . .

● President H. R. Dulany of Griffith-Consumers Co., recently wrote D. W. Russell, Airtemp President, the letter at the left. In three paragraphs he tells the whole story of why "Chrysler Airtemp Dealers Make Money." Read the letter and then send the postcard for the Chrysler Airtemp Proposition.

Turn the Page for More Facts

MAIL THIS CARD FOR THE AIRTEMP PROPOSITION!

AIRTEMP DIVISION, DEPT. AA-9
Chrysler Corporation, Dayton, Ohio

GENTLEMEN:

Please send me the Chrysler Airtemp Proposition for dealers.

Name _____

Address _____

City _____ State _____

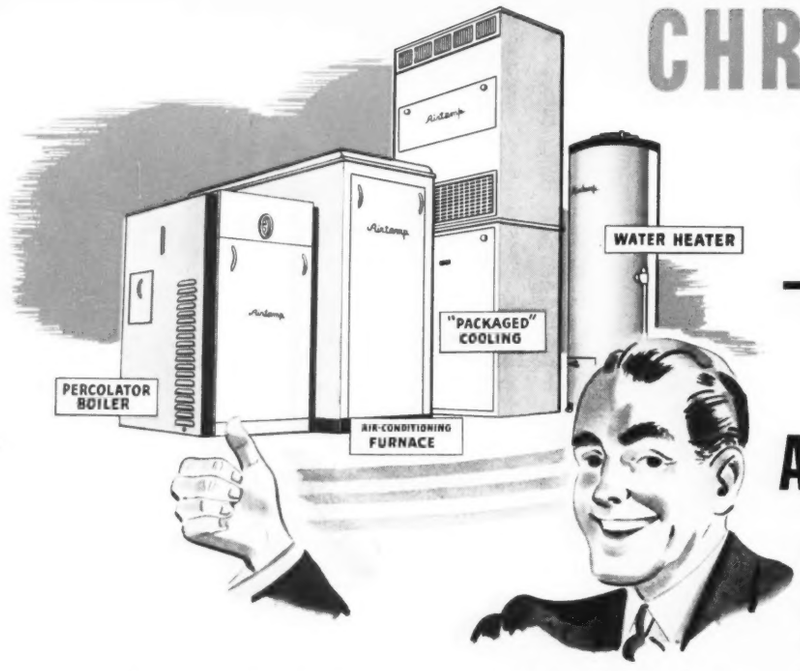
CHRYSLER AIRTEMP

OFFERS DEALERS . .

—A COMPLETE LIN

and

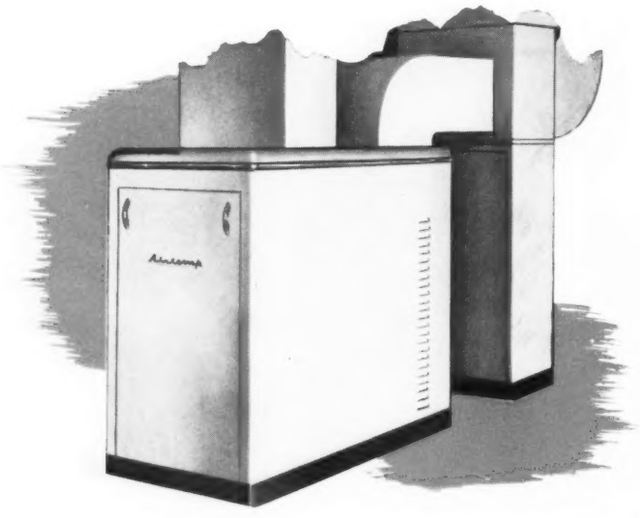
An Exclusive Sales Leade



● Chrysler Airtemp offers every type of heating dealer money-making proposition. Airtemp dealers can buy a f line of heating and air-conditioning equipment from o responsible factory with a world-wide reputation for e gineering and manufacturing leadership. Airtemp mak oil-, gas- and coal-fired heating equipment, boilers, grav furnaces, winter air conditioners, oil burners, wat heaters, packaged cooling units, complete central co ing installations. Airtemp dealers sell the year arou

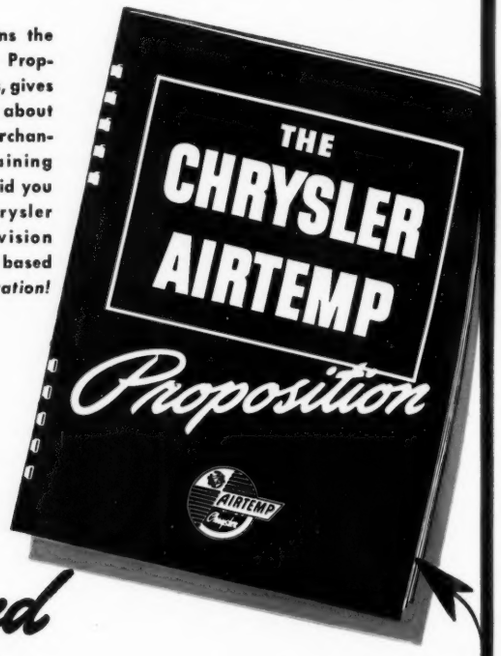
As a sales leader, Airtemp dealers have the most prac cal, low-cost heating and cooling unit on the mark They can sell *year-around* air conditioning for homes even modest cost! The fact that the air-conditioni furnace can be installed and the matched cooling u added later at any time, has tremendous sales appe

● ***The complete Airtemp line***—every unit in it has exclusive sales advantages! One great sales advantage possessed by every Airtemp product is the fact that it is engineered, built and warranted by Chrysler Corporation. See Dulany's letter!



● ***Year-around air conditioning at low cost***—Airtemp has combined its air-conditioning furnace, oil-, gas- or coal-fired, with its 3 h. p. packaged cooling unit for year-'round air conditioning. Buyers get the advantage of low cost, which is the result of mass production. Mail card for complete facts!

This book contains the Chrysler Airtemp Proposition for dealers, gives full information about the line, the merchandising, sales training and advertising aid you get from a Chrysler Corporation Division whose policy is based on *dealer cooperation!*



Postage Will Be Paid by Addressee

BUSINESS REPLY CARD
First Class Permit No. 885, Sec. 510, P. L. & R., Dayton, Ohio

No Postage Stamp Necessary If Mailed in the United States

AIRTEMP DIVISION, Dept. AA-9

Chrysler Corporation

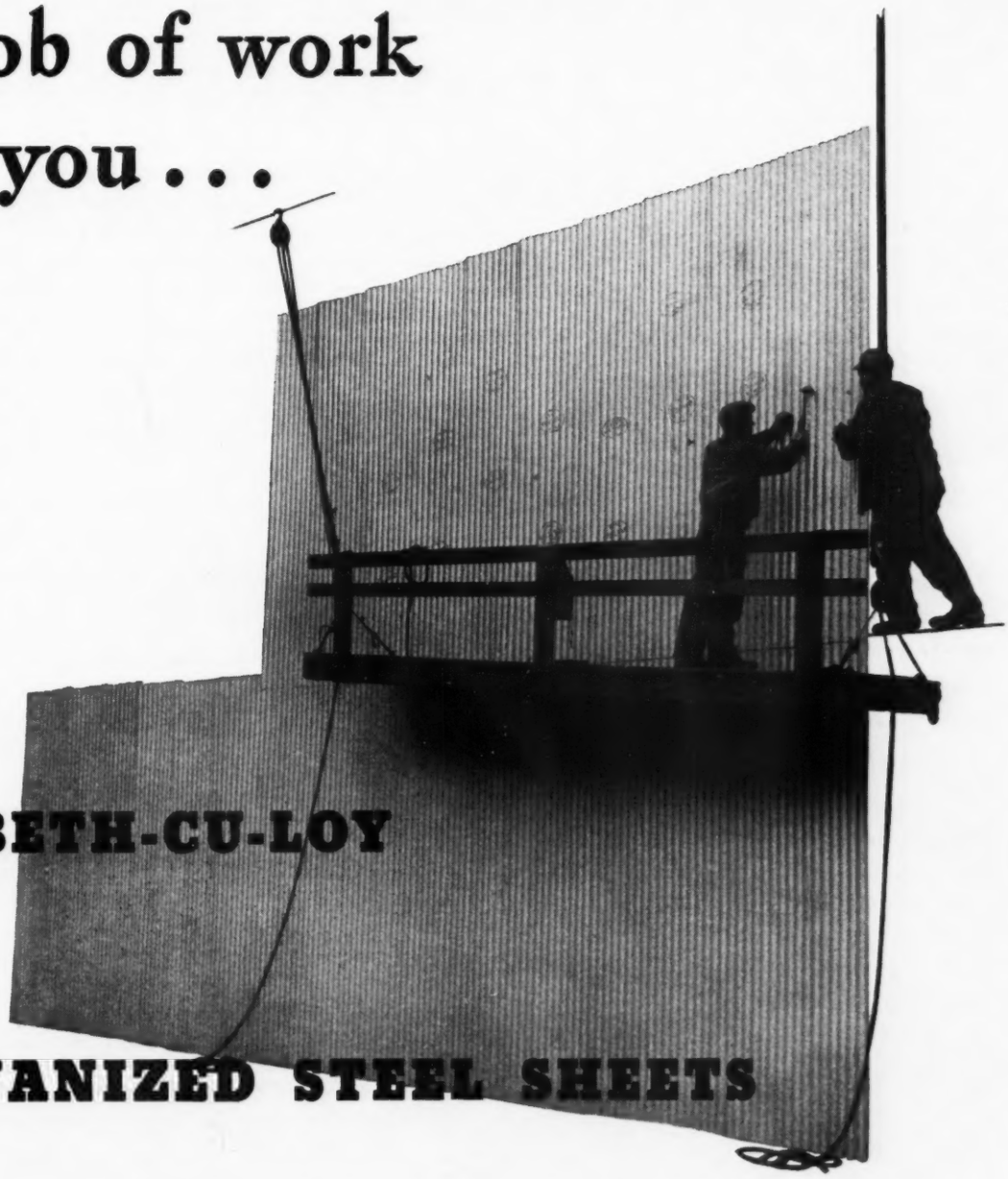
DAYTON, OHIO

Send this card for this book

CHRYSLER AIRTEM

AIRTEMP DIVISION OF CHRYSLER CORPORATION • DAYTON,

A job of work for you . . .



and BETH-CU-LOY

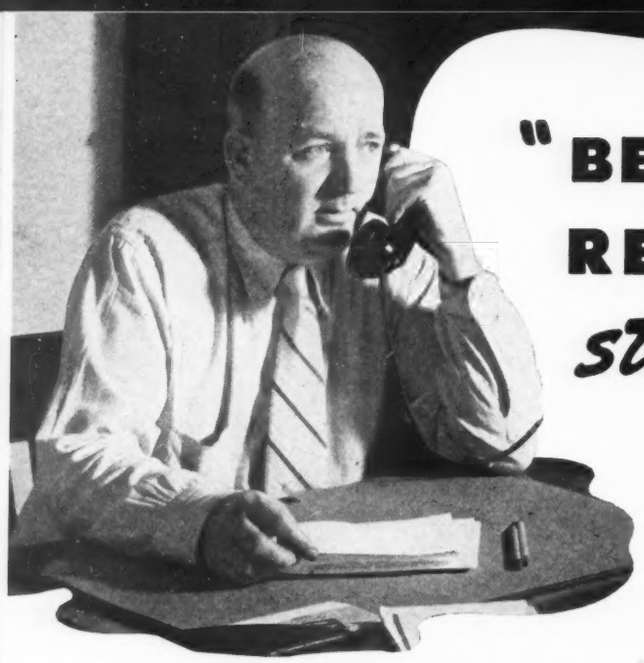
GALVANIZED STEEL SHEETS

Industrial expansion to meet the rising needs of the National Defense Program is making heavy demands on sheet-metal contractors. Roofing, siding, ductwork, vents, stacks, partitions, bins, racks—the building of new plants and the expansion of existing ones call for these and countless other sheet-metal jobs of every type.

Here's a real job of work for you—and for Beth-Cu-Loy Galvanized Steel Sheets, too. Beth-Cu-Loy, with its stubborn resistance to corrosion, is vital to industrial sheet metal jobs. Its copper content of 0.20 to 0.30 per cent gives it double defense against rust. The added cost is only a few cents more per sheet. That combination of longer service life and low cost makes Beth-Cu-Loy the right sheet for industrial installations.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY



"BECAUSE TONCAN IRON RESISTS RUST BETTER, *stays on the job longer*"

This is William E. Donnelly speaking—head of the Wm. E. Donnelly Company, Lakewood, Ohio. Mr. Donnelly learned the sheet metal trade beginning in 1919 under his father. Fourteen years later he had his own business. In 1935, he started specializing in Toncan* Iron for sheet metal work, carried on an extensive promotion campaign. This year, his firm moved into the new, larger and more efficient quarters shown below. (The old location is shown in the oval.) What does Mr. Donnelly think of Toncan Iron? We'll quote from some of the folders he sends to his prospects:

"Have you ever stopped to consider what makes up a sheet metal contractor's bill? Do you realize what a *small* part of that cost is for the metal itself?

"We are prepared to use an ordinary metal if necessary, but frankly, we would rather not. Why? Toncan Iron resists rust better, stays on the job longer! Toncan Iron is the only refined open-hearth iron with copper and molybdenum.

"No matter what metal is used, the greatest part of the cost—labor and overhead—remains the same. Because rust-resisting Toncan Iron outlasts other metals, *it saves money every time.*

"Toncan Iron gutters and downspouts were installed on a house in 1911. The owner reports they are still in good condition! On the houses on either side, ordinary sheet metal was used for the same purposes. In both cases, it lasted *less than five years.*

"Records of similar installations prove that the small additional cost of Toncan Iron invariably is justified."

Like Mr. Donnelly, you can save your customers money and build a bigger business with Toncan Iron. The new Republic booklet, "How Toncan Iron makes Money for Sheet Metal Contractors," will help you. It's full of business- and profit-producing ideas for you.

REPUBLIC STEEL CORPORATION
General Offices: Cleveland, Ohio
Berger Manufacturing Division • Culvert Division
Niles Steel Products Division • Steel and Tubes Division
Union Drawn Steel Division • Truscon Steel Company

* Reg. U. S. Pat. Off.

REPUBLIC TONCAN IRON

An alloy of refined open-hearth iron, copper and molybdenum—*that grows old slowly*

Vol. 110 American Artisan No. 9

Materials *and* Contracts Are Promised

WE have suggested from time to time in these editorials, that readers should not go off the deep end every time they turn on the radio or open their newspaper and receive some "scare" headline or report which seems to portend dire happenings to our industry.

We have made this suggestion because our own impression is that no one person or no one agency in Washington has the exclusive or final word in any measure which is involved in our defense program.

Within the last few days two announcements of importance to readers have been released. The first of these is the maiden statement of September 2 of the newly appointed Supply Priorities and Allocations Board which said in part—

"Our general policy is simple. Production shall be stimulated and organized to the limit of the Nation's resources. Every available man and machine must be employed either on direct defense requirements or at work essential to the civilian economy. . . . Wherever possible to convert the less essential to military or essential civilian production this will be done. . . . The Board holds that defense comes first and while recognizing that the civilian economy must be stripped of non-essentials, it must be kept in good running order and in more than stand-by condition. . . . The Board will devise promptly appropriate controls to assure equitable distribution of materials under a constructive program of priorities, the basic purpose of which is to assure the wisest use of all our resources. . . . Those materials which may be hoarded in the cellars and attics of certain industries and traders will be routed out and put to use where most needed in military and essential civilian production. . . . Scare buying against imaginary requirements of the future will be discouraged effectively. . . . There will be announced shortly a plan for conservation on a national scope of all scarce materials needed in defense production."

We can, of course, append to this only our own interpretation, but it certainly seems as though some one has been buying materials which are not immediately needed thus depriving defense and business of materials and the Board means to put a stop to this practice. Unverified, of course, but commonly reported is the fact that a number of sheet material users have accumulated many times normal needs and these accumulations if spread around will go far to provide supplies now difficult to obtain. Under proper management it well may be that sheet materials can be spread throughout industry thus avoiding the wholesale closing of shops we have been hearing about.

The second announcement of importance to our industry is that the War Department, through the Office of the Under Secretary of War, has directed all of its 815 purchasing agencies throughout the country to effect new policies and regulations designed to bring more of the nation's industries into the defense program. Since the army has become such a gigantic buyer of materials and products of every conceivable description this announcement is important.

The announcement goes on to say—"This step will tend to eliminate distress caused by loss of business to small industries through the exercise of priorities and the scarcity of raw materials. . . . Through the new plans, the industrial load of the defense program will be spread to more manufacturers by liberalizing the procurement methods and by putting into effect regional bidding. Industries can now negotiate with the Army for defense contracts, either individually or in groups. Trial orders may be placed and performance bonds may be eliminated where necessary. Inspections on items will be made at the plant in order

(*Continued on page* 107)

The Defense Housing Rating Plan

is badly needed to supply our industry with area priority ratings which will make available materials and products for heating new and old houses. We should "talk up" this plan

By George Boeddener
Managing Director, National Warm Air Heating & Air Conditioning Ass'n

TWO months ago, C. F. Palmer, Defense Housing Coordinator and E. R. Stettinius, Jr., Administrator, Priorities Division, OPM, announced from Washington the Defense Housing Rating Plan. Unfortunately for the warm air heating industry the plan is being held up. Just why we don't know. An effort has been and is being made to have it released. The plan is badly needed to supply the industry with area priority ratings which will make available necessary raw materials for defense housing construction and for rehabilitation of old houses and structures in defense housing areas.

This Is the Plan

We understand the plan when released will operate as follows:

A priority rating for each defense area in which defense housing is needed will be assigned. The ratings will not be the same for each area. Some areas will have a higher and some a lower rating than others depending upon the urgency of the housing situation.

In each case the builder or general contractor who is bidding on a defense house or houses, publicly or privately financed, will submit plans and specifications and other data required, to the Federal Housing Administration office in his district or territory. If approved, F.H.A. will make recommendation to the Priorities Division of the Office of Production Management that the priority rating for the particular defense housing area be assigned to the builder or contractor.

Heating Contractor Procedure

The builder or contractor will take priority rating for the particular job and pass a copy of it on to the manufacturers whose products are on the list of defense housing critical materials. We understand furnaces will be on that list. The furnace manufacturer, for instance, will then pass the rating on to his supplier of raw materials (as for instance iron and steel or other finished or semi-finished products) along with his order. Registers, pipe and fittings, blower, humidifier, filter and other manufacturers are affected the same way.

Furnaces May Get A-Rating

Priority ratings in order of precedence are AA, A-1-A, A-1-B, A-1-C to A-1-J, A2, A3 to A-10 and B1, B2, B3, etc. We do not know definitely, but we believe defense housing rating priorities will fall in the A-2 to A-10 classification.

After the manufacturer receives his priority rating he cannot be sure when his supplier will ship the materials. It all depends upon the ratings which precede his.

In connection with replacement work in defense areas we do not know at this time if it will be necessary for the warm air heating contractor to make application for a priority.

We Must "Talk Up" This Plan

The issuance of the Defense Housing Rating Plan is vital to all units of the industry. Heating is a prime need for health and morale. And as we enter the Fall and Winter seasons it should precede the installation of other services. Heat is required to carry on all interior work in cold weather. Talk about the necessity of the Defense Housing Rating Plan being made available immediately with everyone you contact in the building industry, governmental representatives, and your own legislative representatives. We must use our best efforts to obtain essential raw materials. That more than selling is the basic requirement.

Defense Developments

OPM Acts to Spread Work to Prevent Unemployment

THE Council of the Office of Production Management took drastic action August 19 to head off in every way possible unemployment resulting from the impact of priorities and the undue concentration of defense orders.

The Council approved a sweeping revision of Army and Navy purchasing policies developed in cooperation with the two Services and designed to spread defense orders wherever practicable.

At the same time it announced establishment of the Defense Contract Service as an independent bureau in the OPM, reporting directly to Director General William S. Knudsen and Associate Director General Sidney Hillman. The new Bureau will be represented in all OPM divisions, and will provide regional advisory services for plant owners, especially for smaller enterprises seeking defense contracts or subcontracts.

Special attention for communities or industries threatened with "priority unemployment" will be administered along these lines:

The Priorities Branch of OPM's Labor Division will inform the Defense Contract Service of the essential facts in each case. The Defense Contract Service will investigate as to the production possibilities and, wherever practicable, the OPM will recommend to the Secretaries of War and Navy a remedial program that may include one or more of the following:

NEGOTIATED CONTRACTS (instead of contracts let by competitive bidding) at prices up to 15 per cent above current quotations.

ORGANIZATION through orders for "a responsible defense association or corporation," so that manufacturers may jointly handle defense work they could not do with their individual equipment.

ELIMINATION OF BONDS for bids or performance, where necessary.

INSPECTION AT PLANTS of the products involved, to facilitate prompt payment.

REIMBURSEMENT of prime contractors for additional costs resulting from extension of such policies to their subcontractors.

General Purchase Policies

The general purchase policies agreed on by the OPC Council are as follows:

1. Bid forms, blueprints, and specifications, normally sent to bidders for purchases estimated to exceed $50,000, will also be sent to appropriate branches of Defense Contract Service. Air mail will be used to the extent practicable and necessary to equalize bidding opportunities.

2. Formal bid openings will not be within less than 15 days from date of call for bids except where the needs of national defense require earlier openings, and awards shall be made promptly.

3. Calls for bids for large quantities to be broken down into optional units to permit smaller concerns to bid for appropriate quantities. Contracting officer shall be empowered to divide an award so that part of it would go to other than the low bidder.

4. Establish more exhibits of specific items broken down into components labeled with description of machine tools and equipment as well as operations required for production. Such exhibits to be placed in centers readily available to manufacturers in addition to those already established.

5. Where regional bidding is requested and production facilities permit, awards will be restricted to regional bidders, unless otherwise approved by the head of the Department.

6. Earlier delivery date proposed by bidder shall be weighted favorably in valuing bids, if such earlier delivery is desirable.

7. Require a statement by the bidder with each proposal in excess of $50,000, stating the minimum percentage of the total which he will subcontract, on a dollar value basis: This statement to become a part of the final contract. The percentage of subcontracting guaranteed by a bidder shall be weighted favorably in valuing bids.

8. No new machine-tool delivery, nor priority thereof, to be given a contractor, under existing contracts, where a commitment therefor has not been made in the contract, or under new contracts, unless and until the contractor shall satisfy the contracting officer and shall certify that no known qualified subcontracting facilities are available within reasonable distance; except in the case where a limited few tools (to be stated by him) are considered essential by the contracting officers to complete a production or assembly line.

◆

States Will Aid to Spread Work

A PLAN to spread defense work more widely, both to speed up defense production and avoid industrial and labor dislocations, was agreed upon July 31 by the Office of Production Management and a committee of the Council of State Governments.

It was agreed that each State Defense Council should designate a production committee to work with OPM's Defense Contract Service in its effort to acquaint Army and Navy procurement officers and prime defense contractors with suitable plants that have not yet received defense contracts or subcontracts.

The Defense Contract Service now has field offices in Federal Reserve Banks and Branch Banks in 36 cities throughout the United States.

In industrial centers where the Defense Contract Service does not now have field offices, State Defense Councils will open offices, manned by experienced production men, to advise and assist present and prospective defense manufacturers.

In order to decentralize the activity as much as possible, it was agreed that these additional offices should be established and financed by the State Defense Councils but should work closely with the Defense Contract Service. Locations of the offices are yet to be decided by the individual State Defense Councils.

How to Replenish Steel Stocks

THE National Warm Air Heating & Air Conditioning Association through Managing Director George Boeddener reports that as a result of consultations with OPACS and OPM representatives the following suggestions cover procedure for replenishing steel material stocks for repairs and maintenance.

General Preference Order M-21 requires that each purchaser of steel products must fill out Form PD-73 with every order placed with a producer. Under the "Group Classification" on the reverse side of Form PD-73 there is a classification—"Group G. OPACS" which states—"Contracts, committments, purchase orders covered by any civilian allocation program which may be determined by OPACS."

Order No. PM-714 (OPACS) says—

1. **Allocation of Materials and Equipment for Maintenance and Repair of Durable Consumers' Goods.**

Materials and equipment necessary for the maintenance and repair of consumers' durable goods in the following classifications shall be allocated to such use prior to the satisfaction of other competing civilian demands:

Passenger automobiles
Trucks and tractors
Household refrigerators
Stoves, ranges and water heaters
Plumbing fixtures
Furnaces, including oil burners and automatic stokers

2. **Advoidance of Excessive Inventories.** Allocations made under this program shall not be used to accumulate excessive inventories, or to divert parts still serviceable.

3. **Definitions.** As used herein, the term "maintenance" means the up-keep of durable consumers' goods, and the term "repair" means the restoration of the goods to a sound state after wear and tear, damage, destruction of parts, or the like. These terms include replacement of parts which have been worn out, damaged or destroyed, but do not include replacement when the new part or parts represent a change-over in model, the introduction of superior type equipment to replace usable equipment of an older or inferior type or design, or a substitution more extensive than that which is necessary to replace the part or parts that are worn out, damaged or destroyed.

◆

SPAB Tops OPM and OPACS

PRESIDENT ROOSEVELT on August 28, in an executive order, announced the formation of SPAB (Supply Priorities and Allocations Board) a new board of seven members to have authority to allocate available supply of materials and to fix priorities for military, lend-lease, and civilian uses.

Specifically, the new board is charged with dividing available materials between military, lend-lease and civilian needs. The board will formulate policies and regulations governing the allocation of materials among competing civilian industries and users.

As an example, if steel is the material needed, the board will determine the needs of military, lend-lease, economic warfare and civilian requirements. After the amount of steel remaining for civilian use is determined by the board, the board will formulate the policies and regulations governing the amount of steel to be allocated to automobiles, railroads, refrigerators, buildings, and other users.

Actual administration of the regulations will be handled by OPM priorities division under Donald Nelson, which will issue priority certificates. OPACS will make recommendations for civilian allocation to the new board for final approval or amendment.

The new board will consist of the existing board of OPM, including Stimson, Knox, Knudson, Hillman and these additional members—Price Administration Henderson, Lend-lease Administrator Harry Hopkins, and Vice President Henry Wallace. Wallace is made chairman of SPAB.

OPM Nelson is made executive director and is also made director of priorities of OPM. Stettinius, present priorities director, is made lend-lease administrator—a new job. OPACS Henderson heads a new division in OPM—the Division of Civilian Supply—in which he will initiate all plans and programs for civilian allocation of materials. He also remains Price Administrator.

The Office of Price Administration and Civilian Supply (OPACS) now becomes OPA (Office of Price Administration) with civilian supply functions now going to the new OPM supply division.

◆

Ceiling Put on Copper Scrap

COPPER scrap, which has been selling at levels completely out of line with the price of copper, is restored to a fair relationship in Price Schedule No. 20, announced August 19 by OPACS.

The scrap ceiling establishes price differentials of from 2 to 4 cents a pound below 12-cent copper for the leading kinds and grades of scrap. A uniform dealers' margin of ¾-cent a pound for collecting, sorting, storing, and shipping is also allowed.

10 Cents a Pound for No. 1

Top prices are fixed in the schedule at 10 cents per pound for No. 1 copper wire and No. 1 heavy copper; 9 cents a pound for No. 2 copper wire and mixed heavy copper (each containing 96 per cent of copper), and 8 cents a pound for light copper (containing 92 per cent copper). These maximums apply to sales by "makers" of scrap, delivered to the buyer's plant or warehouse.

A premium of one-half cent a pound may be charged by makers only, on shipments aggregating 40,000 pounds or more and made at one time.

The schedule prices will apply on and after August 19, 1941, irrespective of existing contracts.

◆

1941 Steel Demand 80 Million Tons

THE committee on commercial research of the American Iron and Steel Institute reports that total steel requirements for armaments, domestic and civilian uses for 1941 will be 80 million net ingot tons which was approximately 95 per cent of the industry's capacity at the beginning of 1941. This represents a 20 per cent increase over 1940 usage.

The committee reports that steel will be consumed as follows—jobbers, distributers, dealers, 11,800,000 tons; automobiles, trucks mechanized military equipment (including tanks), 11,000,000 tons; construction (including highways, cantonments, arms plants) 9,400,000 tons; for shipment aboard, 8,500,000 tons; ship building, 2,600,000 tons; aircraft production, 300,000 tons.

New Critical Priorities List

A REVISED edition of the Priorities Critical List was issued August 18 by E. R. Stettinius, Jr., Director of Priorities.

The Priorities Critical List is a list of items on orders for which Army and Navy contracting officers may automatically assign preference ratings.

The new list, unlike previous editions, is broken down for purposes of clarity into two sections—one for finished products and the other for raw materials.

About 300 items and classes of items appear on the list. In most cases, except for the items under industry-wide control and those under inventory control, items which appear on the list are subject to priority regulation only in the sense that Army and Navy orders may be assigned preference ratings so that delivery dates may be met.

Parts and accessories: The items that appear on this list shall be deemed to include all fabricated, mechanical or electrical component parts and accessories necessary for the completion, maintenance, or mechanical operation thereof including spare parts and extras, excluding raw materials unless specifically included in the list.

Allocation: Material which has been subjected to industry-wide control and allocation by the Priorities Division will be governed by specific orders from the Priorities Division which may to some extent modify the effect of preference ratings previously issued.

Metals: It will be noted that all metals except a few precious ones are now covered by this list.

Extension: Ratings may only be extended "down" for finished and semi-finished products, not "up" from raw materials on the list. In other words, no extensions can be made from materials named in Section II of the list. For example, since trucks are on the list the preference rating assigned to trucks may be extended to radiators; but the fact that copper is on the list does not mean that a rating extended to copper may be re-extended to cover copper wash bowls.

I. Finished End Products

(12) Asbestos products, to include only roofing, siding, pipe and pipe covering. (25) Boilers: power plant; heating. (50) Compressors (air): power driven. (53) Containers; galvanized; portable refrigerated. (54) Control equipment for electric motors, automatic. (63) Dies; forging; diamond. (83) Furnaces, industrial (any fuel): for heat treating, baking or melting. (96) Hammers, power driven. (107) Insulating fire brick. (108) Jigs and fixtures. (121) Machine and metal working tools. (139) Motors: electric, including fractional horsepower. (204) Thermometers, industrial. (205) Thermostatic controls for refrigeration and air-conditioning machinery.

II. Raw Materials

Transformers, electric. (222) Aluminum and aluminum alloys: pig or fabricated. (226) Boric acid. (227) Brass: pig and fabricated. (232) Chromium. (234) [1]Copper: pig and fabricated. (235) [1]Cork. (240) Ferrous alloys, all types. (248) Iron and steel products, including rolled, drawn, forged and cast; pig iron; and alloy steels. (249) Lead. (256) Monel metal. (259) [1]Nickel alloy steel. (260) [1]Nickel: pig or fabricated. (261) Nonferrous alloys, all types. (272)[2] Steel, semifinished, finished, and fabricated, including alloys. (274) Tin. (279) Welding rod. (281) [1]Zinc.

[1]Items which to the date of this edititon have been subjected to allocation by the Priorities Division.

[2]Steel products are covered by a special order requiring preferential treatment of defense orders and permitting users to file a formal complaint of any inability to obtain delivery or place orders. Nickel alloy steel and Tungsten alloy steel are subject to industry-wide control.

To Survey Industry to Find Strategic Metals

AMERICAN industry is being asked to cooperate with defense agencies of the Federal Government in a broad campaign to establish the quantities and whereabouts of strategic metals vitally needed for national defense.

The Bureau of the Census, acting as agent for the Office of Production Management and the Office of Price Administration and Civilian Supply, has put into the mails the first of 65,000 questionnaires, addressed to the manufacturing users of defense metals.

Those receiving the questionnaires, which are in simple form, will be asked to use them to report the quantities on hand and the uses made, during August of:

Antimony, cadmium, chromium, cobalt, copper, ferro-alloys, iridium, lead, manganese or spiegeleisen, mercury, molybdenum, nonferrous alloys, tin, vanadium, tungsten, zinc, and scrap metal containing any of these.

The completed forms are to be returned promptly to Washington, where they will be tabulated.

Wholesalers May Get Queries

It is expected that another questionnaire will soon be sent out to wholesale dealers in these metals.

◆

Metal Working Pool

A READER wishes to know how several firms can pool their facilities to obtain sub-contracts. Our best information is that someone should be appointed to write to Special Service Section of the Defense Contract Service, Peter R. Nehemkis, Jr., Director, Social Security Building, Washington, D. C., and explain in detail who, what and where.

◆

Freon Refrigerants Allocated; Maintenance Gets First Call

ALLOCATION of available supplies of Freon refrigerant gases to users and manufacturers of civilian refrigeration and air-conditioning equipment in the order of relative importance to the public welfare is directed in a program announced August 19 by the Office of Price Administration and Civilian Supply.

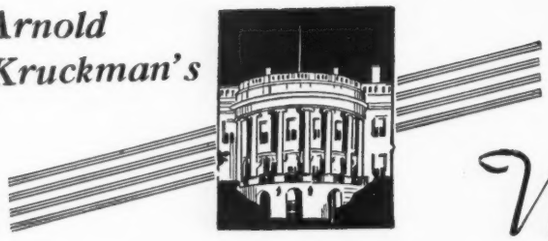
Maintenance Preferred

A senior classification is assigned in the program to maintenance of all types of refrigerating equipment now operating and existing air-conditioning equipment in hospitals, clinics, and sanitoria requiring Freon refrigerants.

Maintenance of industrial air-conditioning equipment already installed ranks next in preference, followed by maintenance of other air-conditioning equipment, then by manufacture of new refrigeration and air-conditioning equipment.

Current supplies of Freon are expected to be adequate for the maintenance of all installed refrigeration and air-conditioning equipment, but some deliveries for new units may have to be deferred until the summer ice cream and air-conditioning season is passed.

Arnold Kruckman's



Washington Letter

Legislation To Aid Small Business

EVERY business man concerned about "priorities" should become familiar with S. 1847, a bill introduced in Congress by Sen. Joseph O'Mahoney of Wyoming. It is the first formal move on "the hill" to do something about the "strangling effect of the priorities law," and to help "business men who have been mowed down by priority orders." Sen. O'Mahoney's proposed amendment, as drafted by Sen. Francis Maloney of Connecticut, is short, and bears exact quotation:

"Any person whose business operations are adversely affected by the assignment of a priority pursuant to (the Law) with respect to any materials used in connection with such operations shall, upon application therefor under such regulations as the president may prescribe, be afforded an opportunity forthwith to present his views thereon at a hearing to be designated by the President. If . . . such person establishes to the satisfaction of the agency . . . that as a result of such priority his business operations will be seriously interfered with or substantially curtailed because of a shortage of any materials necessary to such operations, that his inability to continue business operations will result in a serious unemployment problem of his employees, and that the interests of the consumers of the articles produced or manufactured . . . will be substantially impaired, the agency shall make an immediate report thereon to the President. Thereupon the President shall allocate to such person such amounts of the material with respect to which the shortage exists as in his judgment will be necessary to prevent substantial hardship to such person, his employees, or his consumers."

Progress of Bill

The bill has been referred to the Senate Committee on Naval Affairs. If it appears that appropriate action will be better had in some other Committee, the bill will be transferred By the time this is published either an identical bill, or a stronger bill, may have been introduced in the House. The O'Mahoney bill is regarded as a fine basis for discussion. It *appears* indirect in application; actually it is mandatory. If enacted, the agency designated must consider and act upon the business man's application and the President, or his agent, must decide upon some allocation of materials.

The chief lack seems to be absence of specific *time* limitations. As now written, action could be deferred by the agency and by the President, indefinitely.

Action Is Possible If—

Sen. O'Mahoney, and his co-sponsor, Sen. Maloney, are vitally interested in the opinions of business men, workers, and consumers about the bill. Your personal suggestions will be more than welcome. If the pressure of public interest from the business man, the worker and the consumer is sustained, the bill will be called up for hearings before the Committee in charge in the very near future. These hearings are all important. What is said by those competent to advise and counsel the committee will shape the eventual form of the bill as it goes before Congress for adoption. Your personal testimony, as a business individual or as the representative of a group, a trade organization, or a civic organization, or a labor union, will be considered very seriously.

Congress is so actively interested in this whole problem of priorities that there is insistent grapevine word the members may return from their informal vacations before September 15, the date set for reassembly. A huge mail on the subject has been flooding the Hill. The members of Congress are interested and they are interested in hearing not only from you as a manufacturer, but they are interested in hearing from your trade organizations, and from your dealers who surely have something to say.

Write Your Congressman

They are interested in hearing from the other business men in your community, and from your clubs or commercial organizations. They are interested to learn what the individual thinks they should do. Bear in mind, Congress still thinks this is a Democracy, and that the nerve center of the Democracy is located on Capitol Hill. When they feel that you are sufficiently interested to record your wishes and to actively fight for your interests, they will act, no matter what the White House, or the Executive departments on the other end of Pennsylvania Avenue may desire.

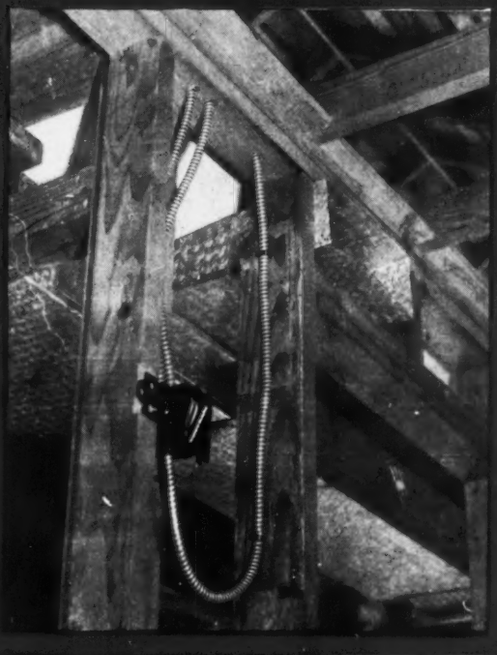
Critical September

The general sense here is that September will be memorable in its paralyzing shock on all industry by reason of curtailments to be imposed in use of metals for non-defense manufacture—unless you and the workers and the consumers administer a counter-shock. Congress realizes that the perfectly honest officials in the defense government, responsible for the priorities program, are all jittery and

(*Continued on page* 102)

RESIDENTIAL AIR CONDITIONING

SECTION



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Repair, Replace, Recondition—

To Meet Defense Problems

Washington is asking for new housing quickly. Making new quarters out of old and putting old houses in livable condition will be one answer. These quarters must be heated to modern standards and this job is 100 per cent in the hands of this industry's dealers. Repair, replace, reconditioning calls for a business-like analysis of what can and what must be done. So we start here a series of articles based upon bed-rock findings of our research program by an author known to every reader. Since the basis of all combustion is chimney draft—this first article is a check sheet for draft analysis. The series will provide a check-list of repair, replacement and reconditioning possibilities.

Constipation In The Chimney

By S. Konzo
Special Research Assistant Professor
Engineering Experiment Station, University of Illinois

No single problem is as universal as that represented by the complaint, "What can I do to improve the chimney draft?" *Constipation in the chimney* is just as serious and as annoying as constipation in the human digestive tract. The homeowner confronted by a poorly responding fire and a smoky basement, resulting from poor elimination of flue gas products, is often driven frantic by the "buck passing" that usually occurs between the heating contractor, the fuel dealer, and the building contractor. In a great many cases the fundamental difficulty lies in the fact that the chimney was not properly built. (See Figs. 1, 2, 3, 4.) Unfortunately, in most such cases the building contractor is not available, and the heating contractor or the fuel dealer is faced with the difficult problem of improving conditions.

Chimney complaints are "tough." There is no single remedy or laxative that will cure all cases. The solution may consist of a trial and error procedure that will tax the ingenuity of the trouble shooter. Rightly handled, this type of service call will win the everlasting gratitude of the homeowner. It would seem that the good will and cooperation of the homeowner can be secured if the contractor will patiently explain the difficulties ahead and make no rash promises.

What to Look for on the Outside

When a call comes to inspect a chimney complaint, you should include the following simple tools in your kit:

1. box of long-stemmed wooden matches
2. flashlight with focussing beam
3. small hand mirror
4. measuring rule
5. roll of flexible wire about 40 feet long
6. portable draft gage
7. flue gas thermometer
8. furnace cement
9. putty
10. knife
11. ice pick
12. screw driver
13. oil soaked rags
14. waste
15. gunny sack
16. Copy of the "Yardstick for the Evaluation of a Forced Warm Air Heating System." Refer to pages 6, 8, and 23
17. rabbit's foot for good luck.

When you arrive on the scene and before you go inside, look the situation over carefully and

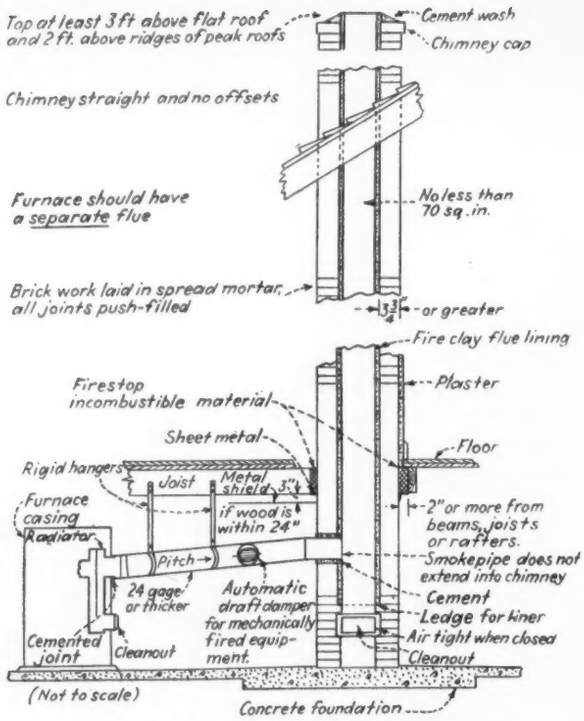


Fig. 1—Proper chimney and smoke pipe construction with notations pointing to critical features. (Reproduced from the "Yardstick" of the National Warm Air Heating & Air Conditioning Ass'n).

ask yourself the following questions:

1. From which direction does the prevailing wind blow during the heating season?
2. Is the house on the side of a hill or in a hollow where the winds from higher ground might blow down on the roof?
3. Are any large shade trees or tall buildings nearby, which might cause down drafts on top of the chimney?
4. From the direction of the smoke issuing from the chimney is there any evidence of any downdraft due to the surroundings? (See Fig. 3.)
5. Does the top of the chimney extend at least two feet above the ridge of the roof? (See Fig. 3.)
6. Is it an outside chimney that might be cooled to such an extent that the draft is insufficient?
7. Does the chimney appear to be sound in construction? Has the chimney cap deteriorated or crumbled? (See Fig. 4.)
8. Is there a metal extension, a chimney cap, or any spark arresters on top of the chimney? (See Fig. 4.)

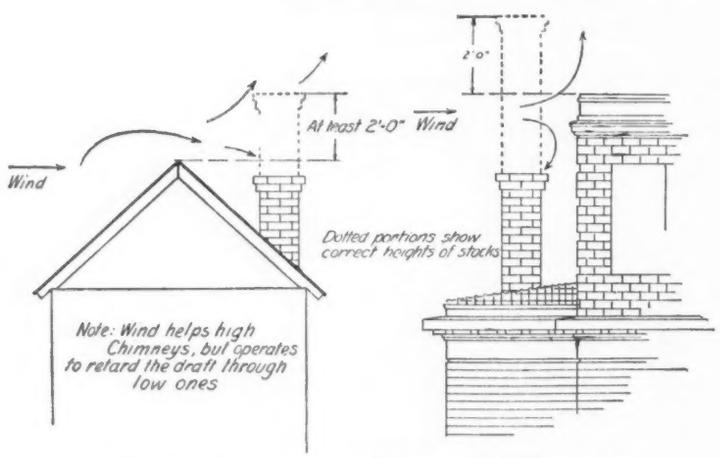

2'-0"
At least 2'-0"
Wind
Wind
Dotted portions show correct heights of stacks
Note: Wind helps high Chimneys, but operates to retard the draft through low ones

Fig. 3—The top of the chimney should be at least two feet higher than any nearby structural part of the house if down drafts and variable drafts are to be avoided.

What Is the Case History?

After you have met the occupant, find out if possible the answers to the following questions, which may give you some clues to the solution of the problem:

1. How old is the house?
2. How long has the occupant lived in the house?
3. Has the chimney draft always been unsatisfactory?
4. If not, when did the trouble appear? Did this coincide with the installation of a new furnace, a new water heater, or any other equipment that might have been attached to the same flue? Or did this coincide with the use of a new type of fuel?
5. What is the specific complaint? Does the furnace smoke only at the time of firing? Is heat response slow? Does the system otherwise perform satisfactorily?
6. What fuels have been used? What size of coal? Did any fuel show greater or lesser tendency to cause trouble?
7. When was the smoke pipe cleaned or replaced?

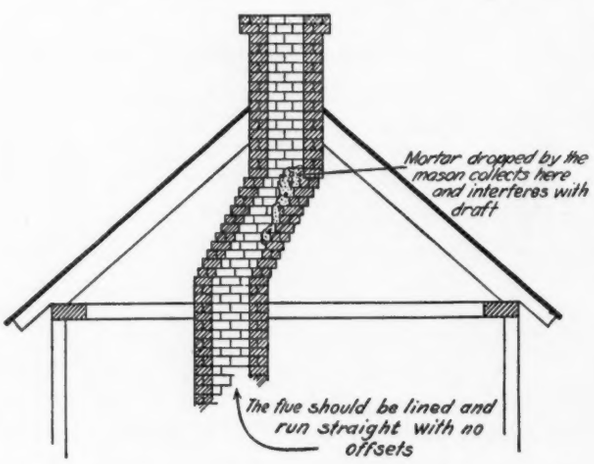

Mortar dropped by the mason collects here and interferes with draft
The flue should be lined and run straight with no offsets

Fig. 2—A common chimney fault is the large offset which catches soot. Eventually this chimney looses draft. Note, also, lack of tight chimney liner—a serious fault.

8. Has anyone else inspected the chimney and did he do anything that helped the condition?
9. Does the draft condition appear to be worse when the weather is mild, when the wind is in any particular direction, when the drafts are wide open, or when the fire is banked?
10. Who fires the furnace, when, and how? Page 6 in the Yardstick should be brought to the attention of the homeowner.

What to Look for Inside the House

If both you and the homeowner have survived this "third degree" examination, it is your turn to proceed with eyes alert, ears open, your shoulders braced (and your fingers crossed). In examining the furnace make mental note of the following items:

1. On casual inspection does the furnace appear to be undersized or oversized for the house?
2. What sort of controls are installed? Do they

appear to be in good working condition?

3. Inspect the firing door and ashpit door for tightness.
4. Does the homeowner allow the ashpit to fill up with ashes? Examine the ashpile to see whether many clinkers have been taken out.
5. Has the galvanizing layer on the sheet metal casing peeled, indicating intense firing? Does the smoke pipe show marked discolorations or other signs of intense firing?
6. Do the furnace joints appear to be sound, or are they loose and admitting air into the flue gas stream?
7. Poke the smokepipe with the ice pick. Is the pipe sound and tight? Does it have many elbows? Is it unusually long? Is it pitched upwards to the chimney opening? (See Fig. 1.)
8. Open the cleanout doors in the radiator of the furnace. Are they tight? Is there much accumulation of ashes and soot?
9. When there is some fire in the furnace and with the check damper closed, apply a lighted match near all the joints in the smokepipe. Is there any evidence of air being sucked into the smokepipe through leaky joints?
10. Is there a water heater vent pipe attached to the smokepipe or to the same flue? Every opening in the smokepipe, no matter how small, is serving to check the fire. Are you sure that a vent from a kitchen stove or water heater or fireplace is not attached to the same flue?
11. Inspect the cleanout door in the base of the chimney. Is it tight?
12. Inspect the mortar joints in the brick chimney. Poke the mortar with the ice pick. Are the joints tight? Is there any sign of flue gas condensation or rain leakage around the brickwork. (See Fig. 4.) (Cases have been reported in which the brick was eaten up by the acids in the flue gas condensate to such an extent that a screw driver could be pushed right through the brick.)
13. Open the check damper. Is there much soot and ash accumulation in the smokepipe?

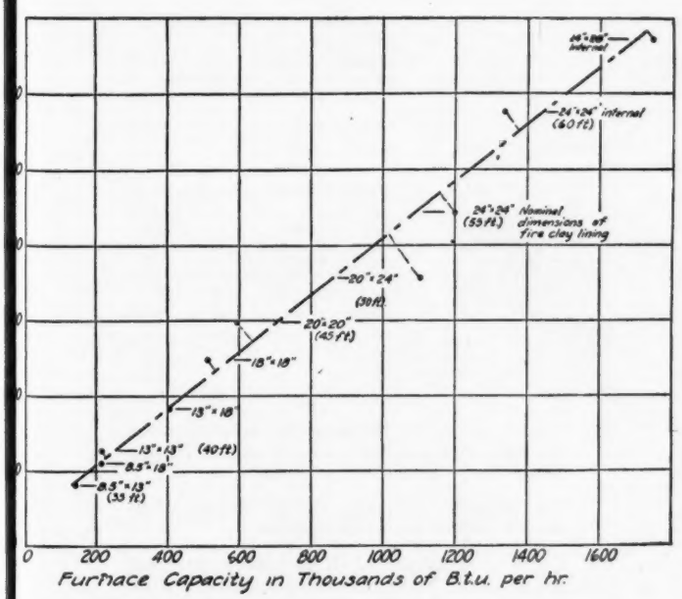


Fig. 5—Pick out the furnace capacity along the bottom; move up to the line and find the minimum liner area and minimum chimney height required for hand-fired coal firing.

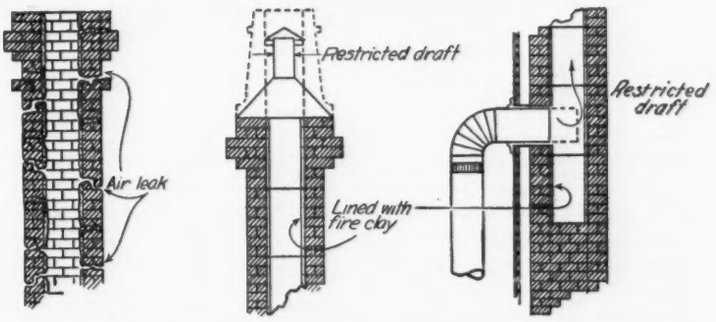


Fig. 4—Cracks through the liner admit air which dilutes smoke temperature. Chimney caps should have areas equal to the liner area. Smoke pipe should not project into the chimney. (These three common draft reducers are from University of Illinois Engineering Experiment Station Circular 4.)

14. Open the cleanout of the chimney. Has the accumulation of ashes blocked the smokepipe connection to the chimney? How big is the flue? (See Fig. 5.)
15. Is the basement unusually tight? Is there any possibility that the furnace is suffocating due to the lack of air for combustion? If in doubt about this point, open up a basement window to see whether conditions are alleviated. (Many cases of oil burners back firing have been traced to this source.)
16. Insert the hand mirror through the cleanout door of the chimney and tilt it at an angle of 45 degrees so that the light from outdoors will be reflected into your eyes. This may not work if the chimney has a very large offset. Is the chimney clear of debris? Does the smokepipe extend into the flue so that the passage is blocked? (Fig. 2 and Fig. 4.)
17. If two flues are contained in the same chimney, a careful check should be made to be sure that the two are not open to each other. The smudge test described in the next item may reveal whether the two flues are interconnecting.
18. If the inspection of the chimney and smokepipe has not revealed any obvious defects, a more drastic test may be necessary. Build a smudge fire in the furnace with your oily rags. Have a helper at the top of the chimney cap the chimney with a board for a few minutes. Is there any indication of leaks in the chimney or smokepipe? Inspect the upper stories to see whether any capped flue openings are leaking. If possible, go into the attic and inspect the chimney in the attic space. Have the helper remove the cap on the top of the flue and note whether there is any evidence of a downdraft on top of the chimney.
19. Insert the pipe connection from the draft gage into the smoke outlet of the furnace. (See Fig. 6.) Close the check damper and build a strong fire. What is the draft? Insert the flue gas thermometer through a small hole in the smoke pipe near the smoke outlet of the furnace. What is the flue gas temperature? Jot these two figures down on paper to serve as a record of the draft before any changes have been made. A comparison set of values should be obtained after all changes have been made to indicate whether the draft has been increased when the same flue gas temperatures were maintained.

In the case of hand fired coal furnaces this

Flue temp at collar Degrees.	Average temp. in chimney Degrees	Draft per foot of flue height in inches of water			
		Outside Temperature			
		At 0 Deg.	At 30 Deg.	At 50 Deg.	At 70 Deg.
300	100	.00216	.00114	.00053	.00009
450	200		.00333	.00272	
500	200	.00435	.00345	.00280	.00255
650	300	.00580	.00494	.00433	.00380
700	300	.00596	.00500	.00450	.00385
800	400	.00680	.00600	.00540	.00500
850	400	.00700	.00618	.00557	.00515
900	400	.00720	.00630	.00570	.00525

This table shows chimney draft per foot of chimney height at selected outdoor temperatures and smoke pipe temperatures which you should expect in a sound chimney.

Sq.Ft.of grate in furnace	Lbs. coal at 5 lbs. per hr.	Inches Draft req'd at 5 lb.rate	Lbs. Coal at 3 lbs. per hr.	Inches Draft req'd at 3 lbs. per hr.	Height of Chimney above Grate			
					26 ft.	30 ft.	40ft.	
					Draft of Chimney in Inches of Water at an assumed temp. of 300 degrees			
					.155	.179	.238	
1.22	6.1	.177	3.6	.151	minimum inside size of chimney			
					8X8	8X8		
1.97	9.8	.189	5.9	.154	8X8	8X8		
2.64	13.2	.192	8.	.158		8X8	9X12	
3.17	15.8	.195	9.5	.162		8X8	9X12	

This table shows minimum chimney liner sizes required for 26, 30 and 40-foot chimneys to burn coal at 5 and 3 pound combustion rates at the minimum smoke pipe temperature of 300 deg. (Both tables prepared by L. W. Millis of Security Stove & Mfg. Co., Kansas City.)

draft should be at least 0.12 inches of water, and preferably 0.15 inches. It should be realized that a relatively larger draft is required for anthracite than for bituminous coal, and for smaller sized coal than for larger sized coal. In the case of stoker fired furnaces this draft should be at least 0.05 inches of water. In other words, a stoker or oil burner or gas burner may work satisfactorily in a house in which trouble has been experienced with a hand fired system. In the case of gas fired burners and gun type oil burners the draft may be as low as 0.05 inches, whereas for vaporizing type oil burners a value of from 0.06 to 0.08 in. is usually specified.

What to Do

Some or all of the following corrective measures may be necessary:

1. Clean the chimney. Lower the gunny sack filled with sand down the chimney to knock off soot and tar accumulations, as well as to dislodge brick and cement pieces that may have fallen into the chimney. In some sections of the country unusually heavy deposits of a tar-like substance have been observed, particularly where wood is burned or where garbage is thrown into the fire. It may be necessary to burn out this accumulation with a very intense fire. Remove the soot at the base of the chimney up to the level of the cleanout door.
2. Take down the smoke pipe and clean thoroughly by tapping the sides. If the smoke pipe needs replacement, or the furnace needs resetting, the new smokepipe should be made as short and as direct to the flue as conditions will permit. (See Fig. 1.)
3. Clean out the furnace. A stoker-fired furnace having many horizontal heating surfaces may fill up with fly ash quite rapidly. Arrange with the homeowner to make periodic inspection and cleaning trips. If the fly ash is unusually heavy, reduce if possible, the air rate to the stoker so that a blow torch effect is avoided. Properly sized stoker coals will also give less fly ash than coal that has much fine particles mixed with the larger sizes.
4. If the furnace joints are loose, the furnace should be reset with *liberal* applications of good furnace cement.
5. Make the casing tight, particularly over the firing door. Strip all joints in the casing and return duct system with asbestos paper.
6. Make a tight joint where the smoke pipe enters the flue.
7. If the chimney mortar is crumbling, repoint the bricks.

(*Continued on page* 118)

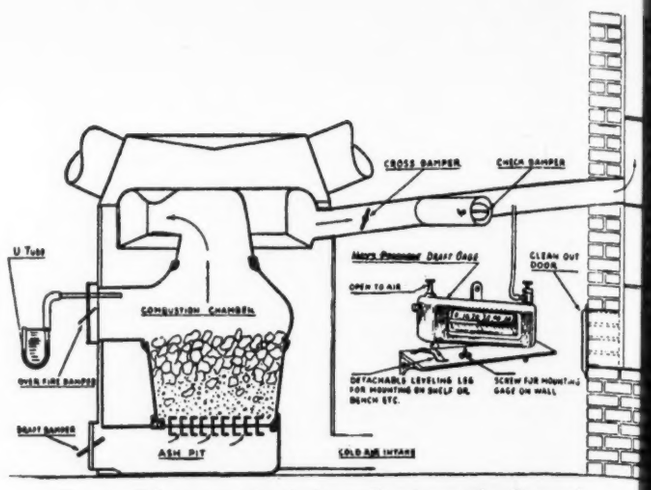
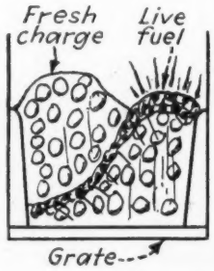


Fig. 6—Where to take draft readings over the fire and in the smoke pipe in a hand-fired coal furnace. Note smoke pipe reading is made between chimney and draft regulator.

a. Use of coal that is cleaned, properly sized (nut or stove size), and treated for the elimination of dust.



b. Firing the coal in such a manner that the live fuel bed is not completely covered with a fresh charge of coal. Smothering the entire fuel bed with fresh coal leads to smoke, waste of fuel, and possibility of explosions.

c. Use of automatic thermostatic controls which will regulate the opening and closing of the ashpit damper and smoke-pipe damper.

d. Use of tight chimneys, tightly fitting ashpit damper, ashpit door, and feed doors.

e. Removal of ash in ashpit at regular intervals. Ashes wetted before removal will minimize dust.

Fig. 7—Many owners do not know how to properly fire a hand-fired coal furnace. This is the "front and back" method.

Recommended Minimum Standards For Gas-Fired Winter Air Conditioning Systems and Low Temperature Warm Air Systems

Washington Gas Light Company
Washington, D. C.

SCOPE

THE following Recommended Minimum Standards together with the Appendix are intended as a guide in adequately meeting installation problems of gas-fired winter air conditioning systems for residences. A primary requirement under these Standards is that installation be in conformity with the regulations of the National Board of Fire Underwriters, of the District of Columbia Gas Fitting Regulations and other applicable local codes. As equipment and technique improves it may be desirable to deviate from these Standards. In such cases written acceptance for recommendation should be obtained from the Washington Gas Light Company provided that the established standards of air delivery, quiet operation and heating comfort are not compromised.

The purpose of these Recommended Minimum Standards is to indicate fundamental requirements of an acceptable winter air conditioning system so that certain difficulties may be avoided. However, other important phases of the engineering such as sizing of ducts, duct layout, specific number and location of outlets, etc., are to be determined by the ingenuity and ability of the installer.

The Company believes that, in general, a system installed in compliance with these Standards by a qualified contractor will be satisfactory, but because of the many factors involved, cannot assume for its operation the responsibility which is obviously that of the installer. On the other hand it is not intended to imply that the installer necessarily should assume the responsibility for changes in the installation of construction detail which was submitted to him and on which the design of the system was based.

For residences having a heat loss of 65,000 b.t.u. or less, exceptions to certain items (marked with an asterisk) have been made. These exceptions are listed in Section XI of the Standards.

TO BE ATTACHED IN A CONSPICUOUS PLACE NEAR THE AIR CONDITIONER

Gas Winter Air Conditioning

INSTALLATION CERTIFICATE

In compliance with the Minimum Installation Standards recommended by the Washington Gas Light Company and subscribed to by the manufacturer of _____ gas heating equipment.

This modern gas winter air conditioning system is designed to maintain an average temperature of seventy (70) degrees F. in each heated space and seventy-five (75) degrees F. in bathrooms when the outside temperature is zero (0) degrees F. Exceptions, IF ANY, are noted hereon:

_____

_____

Equipment

Winter Air Conditioner; Make _____

Model Number and Size _____

Installed at _____ (Address)

THIS installation complies with all local regulations, codes and ordinances, and has been installed in accordance with the Minimum Installation Standards number _____ recommended by the Washington Gas Light Company.

This system has been tested and adjusted; all controls and limiting devices have been inspected and placed in proper operating condition.

Service on this installation will be rendered without charge by the installer for a period of one year from date of installation.

Any defects in material (subject to manufacturer's warranty) or workmanship or any failure to comply with the above standards established within one year from the date of this installation will be promptly corrected by the installer without charge to the owner.

The installer shall not be responsible for damage to the system and heating equipment due to causes beyond the installer's control.

Date of installation: _____
All of the foregoing is hereby guaranteed by the installer.

_____ (Installer)

Per _____ (Signature) _____ (Title)

_____ (Address) _____ (Phone number)

This guarantee endorsed by _____

Distributor of _____ Heating Equipment

Date _____ Signed _____

After house is occupied:
Final inspection and balancing of winter air conditioning system to be made by installer on a moderately cold day (45 degrees F. or lower outside temperature).

Date _____ For installer _____ (Signature)

The equipment furnished on this installation, such as the heating unit, accessories, and other equipment including automatic controls, are subject to the standard warranty of the respective manufacturer.

I. INSTALLATION OF CONDITIONING UNIT

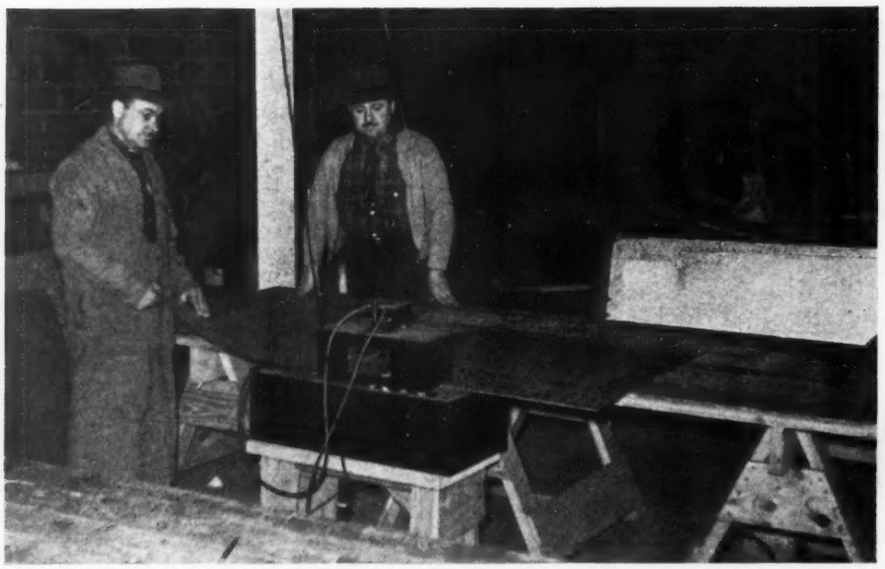
A. Erection

Conditioner shall be erected in accordance with manufacturer's instructions.

B. Furnace Room

1. Conditioner shall be installed in a ventilated room or basement wherein sufficient air for proper combustion is provided in such a manner that normal supply cannot be readily interrupted. Where it is impossible to make the installation in a basement or exposed room, fresh air opening to the outside must be provided by means of properly screened metal sleeve connected to unexcavated ventilated spaces or duct under the building and having a net free area of at least 1 sq. in. per two thousand B.t.u. input to the heater or a minimum area of 75 sq. in. Outside air shall not be taken through a duct from a single wall exposure.
2. When the conditioner is installed in a "utility" room built for the purpose of accommodating heating and plumbing equipment, a notice shall be prominently displayed therein to the effect that household objects. clothing and other similar materials must not be stored or placed in that room.
3. Conditioner should be as near to chimney and as centralized with respect to heat distributing system as practicable.

(*Continued on page* 116)



Falso brothers (Art, right, and Adolph, left) believe in making full use of the extra speed and better workmanship made possible by modern machinery. The lock forming machine is the basis for much simplification.

Falso's Simplification Makes Profits From Prices Competitors Declare Ruinous

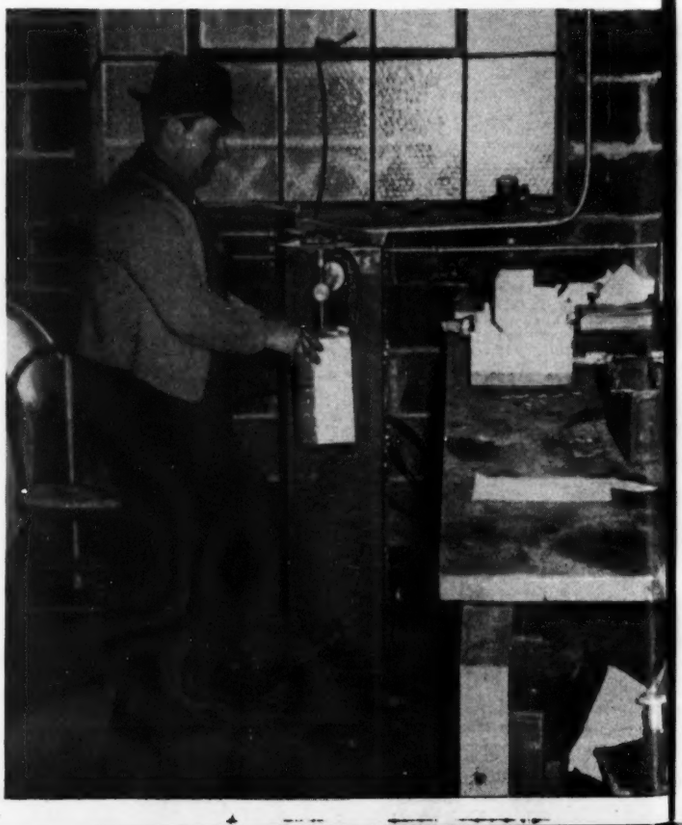
IF you listen to certain factions of the warm air heating industry in Syracuse, New York, you will hear of Falso Heating Company—"We sure do know 'em. But give 'em time and they'll go broke at the prices they ask for forced air systems."

But the Falso brothers, Adolph and Art, don't think they will go broke, and if you take the time, they will explain what they do and how to keep their prices at levels some others consider ruinous.

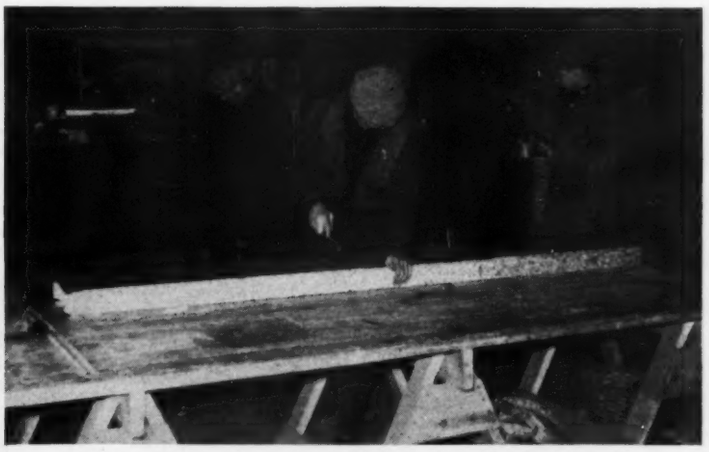
This is the story of how Falso Heating Company installs about 250 furnaces a year. Approximately 125 of these go into new houses built by contractors who erect six, ten, twenty-five houses a year. The popular speculative house in Syracuse has six rooms and basement; is partially insulated; and has a heat loss of about 60,000 Btu per hour.

In the Falso organization there is an engineer who takes the builder's plans and lays out a heating system and prepares a proposal. Duplicate houses, or houses with the same plan, get only one layout which is typical for all alike houses. Dissimilar houses get one layout each.

Acceptance of the proposal means that the Falso system of standardization is approved. It is this Falso standardization which permits economies in shop and field. Falso standardization starts with piping system sections which are alike in all



Considerable saving in material and labor is obtained by spot welding all possible fittings instead of seaming and closing by hand. Art Falso shows a standardized stack boot in the spot welder.



Stacks are made up in large quantities by the shop crew and by field crews when work is slack. Three folds in the 8-foot brake after the Pittsburgh lock is machined (Adolph Falso demonstrating at left) and the stack is ready for closing (right picture) and shipment to job or for stock.

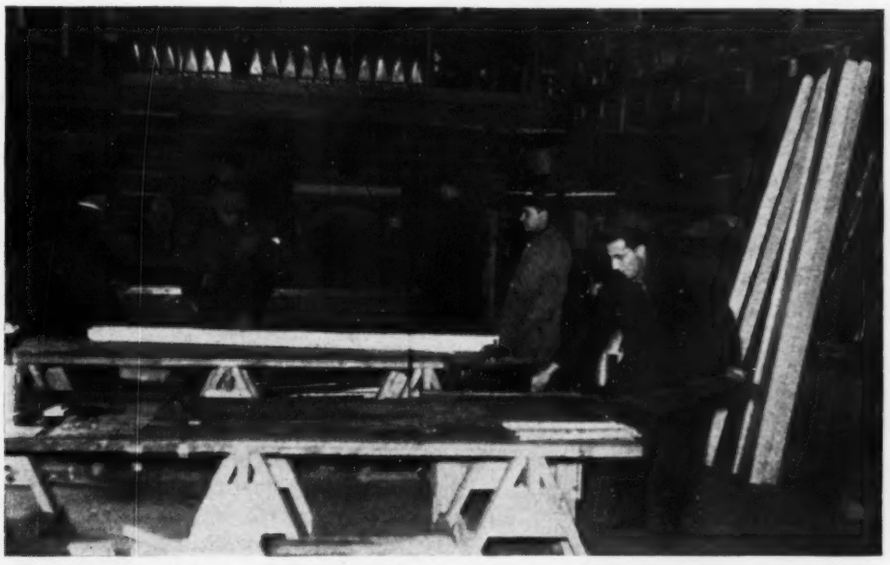
houses. Rectangular main with round pipe branches is the foundation. Main sections are made 8 inches deep and vary in width according to branches added. Branches are confined to 6, 7, 8-inch round pipe in 8-foot sections, cut as needed.

The transition from rectangular to round is standardized and is made up in quantities for stock. Boots, elbows, heads are restricted to a few sizes and are also stocked. All of these fittings are spot welded to save time—this one item of spot welding fittings was found by trial and error to be equally satisfactory, equally strong and quite a bit cheaper than seamed sections.

Stack sections 8 feet long are made in three folds in the brake and seamed with the Pittsburgh lock forming machine.

Stacks, boots, elbows, transitions, heads are made for stock all year 'round by one man who does practically nothing else. As a result, when a job is sold, the mechanics have only to go to the bins and pick out the proper fittings, layout and fabricate the mains and start the work.

The procedure by which a job is installed hinges on specialization. Rough-in work is usually assigned to one man and a helper who do rough-in work exclusively as far as possible. This same mechanic and helper also set the register and grille faces. The furnace is set and cased if the furnace is large or the cased furnace (if the job is small) by another mechanic and helper who specialize in this work. The third crew is a mechanic and helper who measure up the main sections, fabricate them in the shop, erect the main and branches and put in all fittings. This same crew fabricates and installs the plenum.



Shop arrangement is simple. All machinery is placed on the work floor; movable benches being used. Around four sides of the room are suspended bins in which stock is stored.

Above—Falso engineer Shaughnessy at the planning board in the office. Right—Falso's new display room is pine paneled, bright, clean and always ready for use

difficult to say that jobs are "cheap" unless all the details of the house are given. Accordingly the heating systems vary in size and detail but in general are pretty much standardized. Practically all the flexibility and "special" work required occurs in the dimensions of the main trunk sections. Because of this simplification, Falso regularly quotes from $385 to $500 for a forced warm air, gas-fired installation.

The Falso family has been in heating in Syracuse for many years. The father started the business many years ago and raised four boys in the business. Adolph and Art make up one firm, while two other brothers have formed a second firm. Last year the Falso Heating Company built and occupied an up-to-date shop and display room on Syracuse's main through artery, Erie Blvd., East, three-fifths of a mile from the center of the city and handy for builders who drive out to talk over their projects.

The mechanics specializing in certain phases of the work constitute the regular Falso organization. As work increases, these men split off to form additional crews, using "pick-ups" as helpers. When work is slack the regular men join forces to form fewer crews. Last year from seven to eight men were kept busy all year; in rush seasons an additional four or five men were added.

New house construction is not confined to a few builders in Syracuse and most builders favor certain sizes and types of houses. Therefore it is

$100,000 Provided for Advice on Remodeling for Workers

PRESIDENT ROOSEVELT has authorized the use of $100,000 from his emergency fund to employ fee technicians to help home owners estimate the possibilities for repair and modernization to make extra accommodations available in their houses for defense workers.

Speed and economy in providing homes for defense workers are the two principal goals in the program. It is estimated that 15,000 housing units can be supplied by modernization and conversion in areas where acute shortages exist, whereas the same number of the newly constructed units would cost approximately $50,000,000 and take some months to complete.

The authorization will implement a Nation-wide service to help home owners repair and modernize their properties and make extra rooms and apartments available for rent to defense workers. Homes with unused space that could be converted into suitable living quarters will be inspected without charge by architects and technicians, and estimates of the cost of remodeling made free of charge. They will also estimate the amount of income that might be derived from the improved property.

The new program will be carried out through local Homes Registration Offices and Home Owners Loan Corporation offices. The HOLC will do as much of the technical work as possible with salaried employees, and the $100,000 fund will provide for the employment of additional technicians.

OPEN for DISCUSSION

Readers having had experience with the problem under discussion are invited to submit their ideas.

Earth-Floor Cold Air Plenums

Houses without basements seem to be increasing. One problem is the use of the space between earth and floor as a cold air plenum. Is this idea practicable? Opinions vary. This is the first of several articles in which opinons, pro and con, will be presented. This general discussion of past experience, and possible suggestions for meeting the commonest problems, was prepared by G. A. Voorhees, Hall-Neal Company. If you have faced this problem, we invite your comment.

THE returning of cold air without return air ducts and with the use of space between the first floor and the ground of unexcavated portions of the building, as well as the use of the basement itself as a "return air plenum," offers a problem which logically breaks down into two elements:

First: a lack of *control* of return air circulation.

Second: infiltration of cold outside air into the plenum space.

One of the problems that we always had to face in gravity heating was adequate control of the flow of return air from the rooms to the furnace. Many readers will recall that in the days when practically all furnaces had just one large cold air return, they brought about much better heating results by "remodeling the cold side of the system"—by doing away with the one large cold air duct and installing multiple returns, or at least one or more additional returns.

Heating results were generally improved, but unless considerable care was used in revamping the job, it would frequently be found that the flow of return air through ducts from various parts of the house was not properly *proportioned.*

To illustrate: Let's assume that a given gravity plant required about 600 square inches of return air and that we wanted to bring this air back to the furnace through four ducts, each of which would carry 25% of the total return. I think most of your readers will agree that it was not at all uncommon to find the return side of the system as far "out of balance" as indicated by the following tabulation:

Return Duct	Proportion of Total Return Air	
	Expected	Actual
No. 1	25%	20%
No. 2	25%	15%
No. 3	25%	25%
No. 4	25%	40%

Faced with such a condition, we might attempt to correct it by restricting the air flow in duct No. 4 and we might, in this way, step up the percentage of the air flowing through return duct No. 2, *but this often resulted in diminishing the total volume of air flowing.* That is to say, we succeeded in getting the "percentage balance" in better shape, but we restricted the total supply of return air to the furnace and were faced with the usual difficulties of the familiar "shortage of cold air." Obviously, when we met a condition like that indicated in the foregoing tabulation, we learned that the safest bet was to increase the size of return duct No. 2 or straighten it by removing sharp right angle bends—or both.

We learned, sometimes through rather costly experience, that we could not safely depend on DAMPERS in return air ducts to regulate the volume of air flowing BY GRAVITY.

When propeller type furnace fans began to be widely used, it didn't take us long to discover that

in addition to improving the flow of warm air from the furnace to the rooms, it gave us a means of controlling, to some extent, the flow of return air from the rooms. The fan created enough suction to permit us to do a reasonable amount of dampering on the cold side of the system.

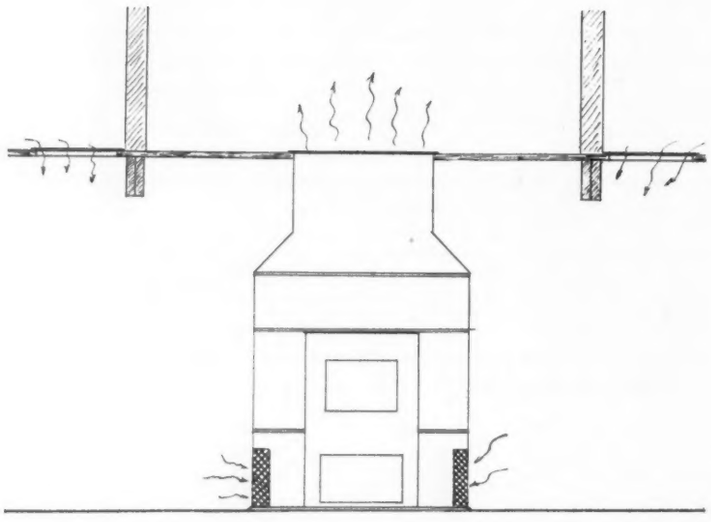
Later, with the advent of furnace blowers (centrifugal type fans), we found that the increased suction enabled us to do a real job of dampering the returns and we could then control the withdrawal of return air from the various parts of the house about as well as we could control the delivery of heated air to the different rooms.

One of the many advantages of the conventional type of forced air heating plant is that it does enable us to control air flow on *both* the warm and cold sides of the system.

The foregoing discussion covers a condition which I think readers will agree has been quite common experience with a *gravity type system*—a certain amount of difficulty on many jobs in getting a properly balanced return air flow from different parts of the house.

Experience from Pipeless Furnace

Now let's go back to the days when the pipeless furnace was sweeping the country and let's think of the type of pipeless furnace which had *only* a warm air supply register over the top of the furnace—not the type which had the divided air chamber with the cold air flowing down through the outer areas of the pipeless grille and the warm air coming up through the center. Readers will recall the difficulties in getting proper control of the return air flow when the only method of returning cold air to the furnace was through openings in the bottom casing section which drew this cold air supply from the basement. Then there were return air grilles in two or more rooms through which cold air from the floor level of the rooms was allowed to flow down into the basement to replace that which was drawn in to the circulating system through the casing openings. (Fig. 1.)



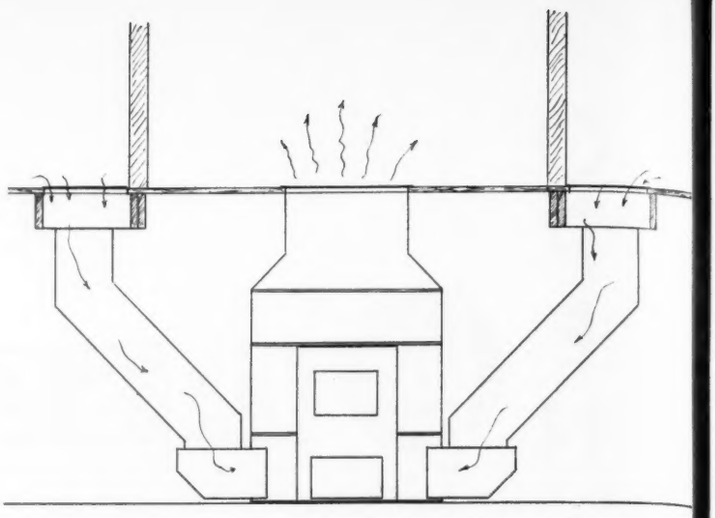


Fig. 2—We "doctored" the unconnected cold air pipeless by installing closed returns as shown and thereby obtained "balance" in air volumes withdrawn from critical rooms.

Heating contractors who were called on to "doctor" such plants will recall that there would sometimes be persistent trouble with some room which had a return air grille in the floor but through which an adequate return air flow did not take place. *They will recall that sometimes the only way they could "whip" that condition was to run a return air duct from the grille in that room back to the bottom of the furnace casing.*

Some readers will recall that, having improved the heating of one room by running their duct from the return air grille in that room to the bottom of the pipeless furnace, they then made it a practice when called to remedy complaints where this type of pipeless furnace was used, of running return ducts from all the rooms which had grilles. They will probably agree that the heating results were usually better when return air was carried back to the furnace casing through ducts rather than just being allowed to settle into the basement to be picked up at the furnace. (Fig. 2.)

In the case of a forced air system installed in a house without a basement where the space underneath the floor is used *without ducts* to carry the cold air back to a point where the furnace blower can pick it up, there's always the *possibility* of the same trouble in *controlling* the return air flow.

Cold Floor a Frequent Complaint

Now to answer specifically two of the frequent questions asked: First, as to whether or not there have been complaints of cold floors, and second, do all first floor return grilles work?

In answer to the first: There have been complaints of cold floors where this type of plant is installed and *one* of the reasons seems to be the

◆

Left—Fig. 1—The pipeless furnace, without connected cold air, showed us how difficult it was to balance return flow when we "dumped" the cold air into a common space.

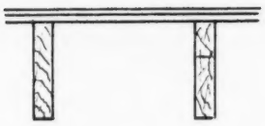


Fig. 3 — The heat transmission coefficient of a common double wood floor is .34 Btu and we should expect the floor to be at approximately the temperature of the air below the floor.

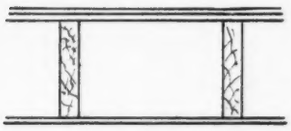


Fig. 4
If ½-in. rigid insulation is nailed across joist bottoms the coefficient becomes .19 Btu and the construction becomes about 79 per cent more efficient in keeping room temperatures higher.

Fig. 5
Fill insulation (3¾ in.), installed as shown, reduces transmission to .08 Btu and makes the floor 425 per cent more resistant to heat loss than Fig. 3.

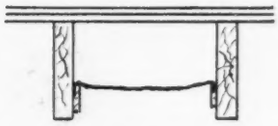


Fig. 6
Low cost insulation can be obtained with building paper tightly nailed across joists. The coefficient is .26 and the resistance to heat loss is 32 per cent better than Fig. 3.

failure of the return air grilles in some of the rooms to deliver the expected volume of cold air from the room to the cold air plenum space below the floor—just such a condition as we found in the case of a pipeless job which had no direct return from the cold air grille (or grilles) to the bottom of the furnace casing.

I think it's a mistake to jump to the conclusion that complaints of cold floors are necessarily due to a high rate of heat transmission through the floor into the cold air plenum space below. I think all readers who have tinkered around much with such systems will agree that *sometimes* there is very evidently *not* a condition of the floor itself being cold (due to excessive downward heat transmission from the room to the space below), but rather it has been due to a "backing up" or an "accumulation" of cold air in the lower levels of one or more rooms—air which, for some reason, has not flowed downward through the return air grille into the unexcavated space below the floor as freely as was expected when the installation was made.

The answer to the second question, "Do all first floor return grilles work?," is contained in the above answer to the first question. Sometimes they do. *Sometimes they do not.*

In-Leakage Hard to Stop

Another frequent problem seems to be leakage of cold outside air into a ductless cold air return space between the floor and the ground, and I know that many readers have had the same experience I have; namely, that in many cases, this infiltration is unexpectedly large and in some cases it is so great as to be almost unbelievable.

Heating contractors who have made such installations in houses already built have learned to watch particularly for balloon-frame construction where there is liable to be a very large volume of air flowing downward between the studding from the attic into the space below the first floor. This has been true of inside walls as well as outside walls, and I recall one such job where placing the palm of the hand on any inside partition felt almost like laying it against a cake of ice.

Even in new house construction, there is liable to be excessive infiltration of outdoor air into the cold air plenum space between the floor and the ground *UNLESS* the heating contractor can be absolutely sure of complete co-operation on the part of both the owner and the general contractor. Even then, he needs to watch every step of the construction with an eagle eye. (I am speaking from sad and expensive experience.)

When the heating contractor meets a situation where the complaint of a cold floor is due to excessive heat transmission downward through the floor into the unheated space below, the first thing is to try to find the source of outside air infiltration into this space and to choke it off effectively. Unless there is considerable infiltration of outside air into such a space, the temperature of air in that space will *usually* be only a little lower than the average temperature of air at the floor line of the rooms.

Insulation May Cure Cold Floor

If the return air plenum space below the floor remains cold after all possible precautions have been taken to prevent excessive infiltration of outdoor air into that space, then the only thing is to try to insulate the floor; otherwise, the floor itself will be cold and there will be continued complaints, especially from women whose thin-soled shoes offer little protection against a cold floor.

Fig. 3 shows a double wood floor on joists and the transmission of heat from the room air to the colder space below the floor will be as indicated in Table 3 of the Technical Mechanical Heating Code (Construction No. 23-a) 0.34 Btu per square foot of floor per hour per degree difference between the temperature of the air in the room at the floor line and the temperature of air in the cold air plenum in contact with the under side of the floor. For convenience in comparing the *resistance* to heat transmission through various floor constructions, let's call the thermal resistance of this floor 100%.

Fig. 4 shows the same floor with ½ inch rigid insulation nailed to the bottom of the joists. This is designated in Table 3 of the Technical Mechanical Heating Code as Construction No. 23-b and its rate of heat transmission is given as 0.19 Btu per square foot per hour per degree temperature

(*Continued on page* 112)

Left—Exterior of basementless houses. Below—The gas-fired furnace installed close to chimney and small section of insulated main duct. Between casing and insulation is the door used to ventilate in summer.

[Defense House Heating]

Attic Furnace-Piped For Summer Ventilation

OMITTING a basement has been one method for getting defense houses under the selling price ceiling established. The heating problem thereby imposed is, of course, where to place the furnace.

Placing the furnace in a utility room or in some central "big closet" frequently requires a shifting of partitions or a rearrangement of the usual floor plan to make space for the "closet."

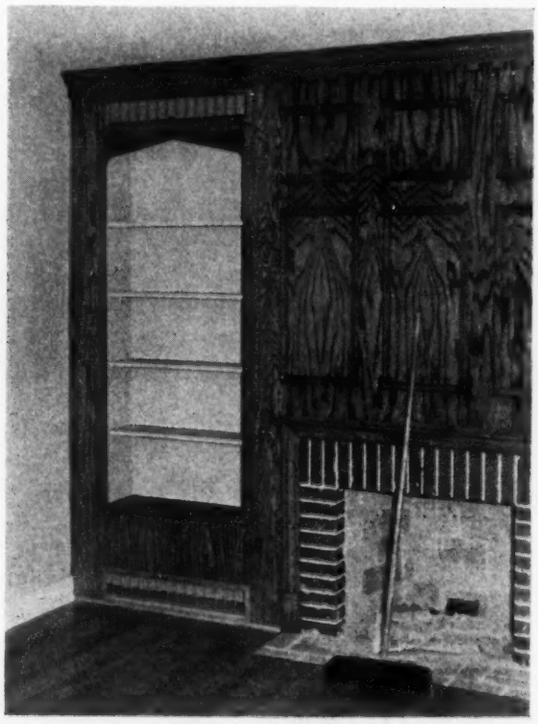
A solution which makes installation simple and permits the usual latitude in selecting register and grille locations is obtained by placing the furnace in the attic. For this purpose gas or oil fuel is necessary, with the odds favoring gas.

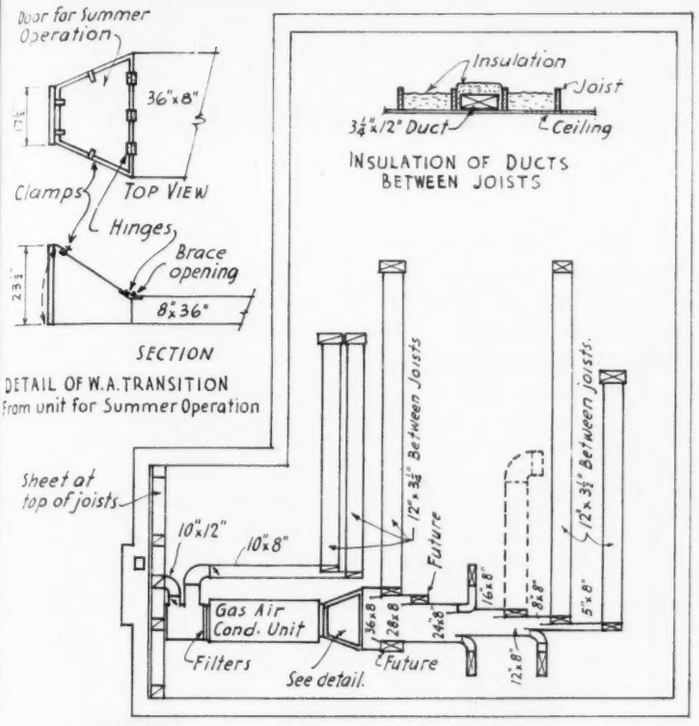
The plans and photographs show one installation in a group of houses in Elmwood Park, installed by Sunbeam Heating & Air Conditioning Company, Chicago. The furnace used is a Lennox "Stowaway," gas fired, forced air unit, without humidifier.

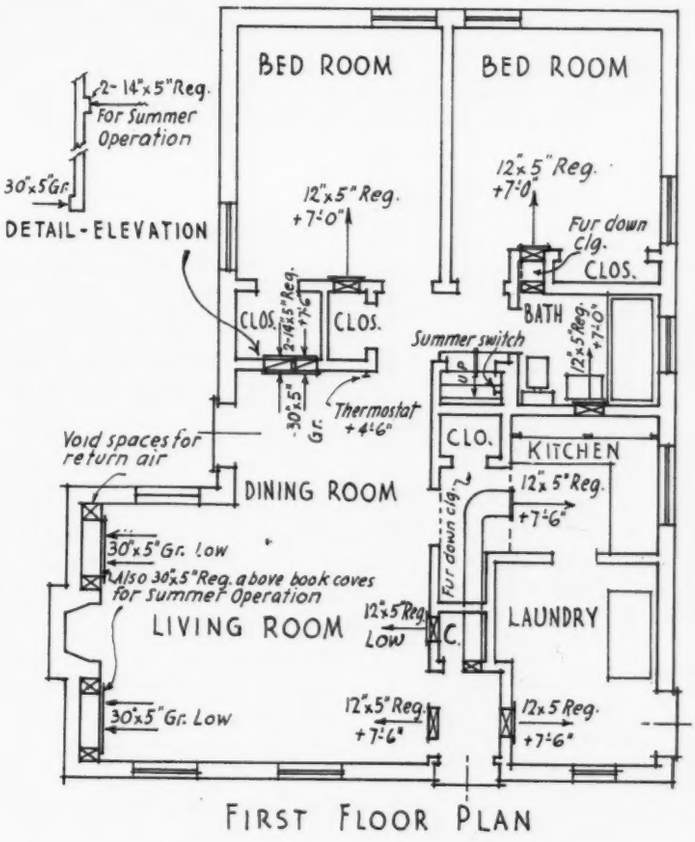
The houses are brick veneer, one story, with unfinished attic, no basement and show a heat loss of approximately 70,000 Btu.

To keep heating system costs as low as possible without sacrifice of quality or performance, the installation was simplified wherever simpli-

Above—Side view of furnace with return main alongside casing. Note sloping door opened in summer to admit downstairs air into attic. Right—Baseboard return grille for winter heating and, above, one of two ceiling grilles in living room for summer ventilation. See sketches for arrangement.







Attic piping plan (see photograph below) and details of door which opens to attic to admit air from blower to attic for downstairs ventilation. Floor plan, right, shows winter and summer return air grilles

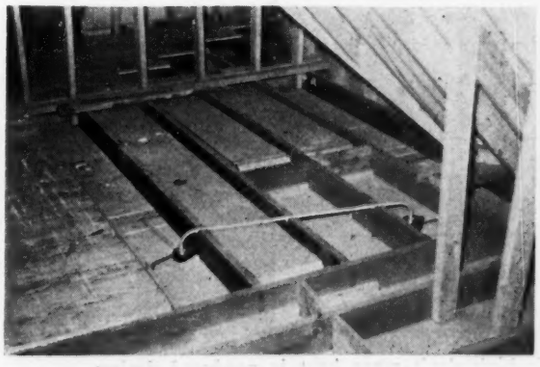
◆

fication could be adopted. For example, all registers are one size; all branches are one size (wall stack of Sunbeam standard production); transitions from main to branch are standard fittings as shown in the photographs; the return system uses the same stock sizes of pipe.

The cased furnace (100,000 Btu output at bonnet) was placed close to the chimney, which has a 7-inch corrosion-proof flue lining. One graduated main, as shown in the photographs and attic plan, was worked out to fit all houses in the group. The main was insulated as shown in one photograph and the branches between the joists are insulated as shown in a detail. Registers are all 7 feet 6 inches above the floor except one low register in the living room. Returns for the heating cycle are three in number and are all in the living room and dining room, which are combined.

The interesting feature of these installations is the provision for summer ventilation. There are two grilles in the end of the living room, up high (see photograph) and one high grille in the closet of one bedroom connected by pipes to the intake side of the furnace blower. A drop trap door in the slope of the main duct where the main flattens out of the furnace casing is opened in the summer (see detail sketch for operation) so air from the rooms enters the attic and, under pressure, exhausts downstairs air with attic air to ventilate both rooms and attic. A toggle switch wired in parallel with the blower provides manual control for summer operation.

The high return grilles must be closed in winter and the low grilles must be closed in summer.



Left—One warm air and two return branches between joists of attic floor. Furnace to rear. Center—Looking down warm air main from the furnace. Right—End view of main showing standardized branch takeoffs developed by Sunbeam.

Effect of Draft on Stoker Operation

On October 7, Walter Knox, Director, Koppers Stoker Coal Research Laboratory, spoke before the Coal and Stoker Institute on the "Stoker's Job in the Coal Industry." This report on Effect of Draft on Stoker Operation was taken from that address and reports one laboratory's findings on this important problem.

OUR company has always done research work on coals, but last year it was decided to add a stoker coal laboratory to the general laboratory. The object was to find definite answers to questions of fly ash, clinkering, hold fire, etc.

We installed a steam boiler and a warm air furnace such as would be found in the ordinary home. We put in two stokers of the one-family size. Attached to these are instruments that in no way affect the heater or stoker operation but allow us to record any variations that result from our changes in method of operation.

We have recording instruments for CO_2 in the flue gas, for draft, stoker wind box pressure, steam pressure, flue gas temperature, retort temperature, etc. We, of course, weigh our coal as well as the water evaporated in the boiler in order to calculate the efficiency of operation. We also measure the air delivered to the fire, both by the stoker fan and through the door slots. We also record the electrical power consumed. And we take motion pictures of the fire in order to obtain a permanent record.

Both boiler and furnace are equipped with automatic draft regulators in their smoke stacks.

These series of tests about which I want to tell you were run on the steam boiler. These were tests with three different draft settings. In other words, we set the barometric, or automatic, draft regulators: first, to give us a low draft; second, to give us what we call a medium draft; and third, a high or extremely excessive draft.

Conditions of Test

It is accepted by engineers that a low draft is the best. What we wanted was not only to show this graphically for small home installations, but to get data on other things. Our field men constantly ask us, what are the causes for varying clinker formations? What things affect fly ash? What is the best "Hold-fire" setting?

Therefore, our procedure was to run a series of tests at each damper setting and under various conditions. We recorded every bit of data that we could. At the end of these tests, we weighed

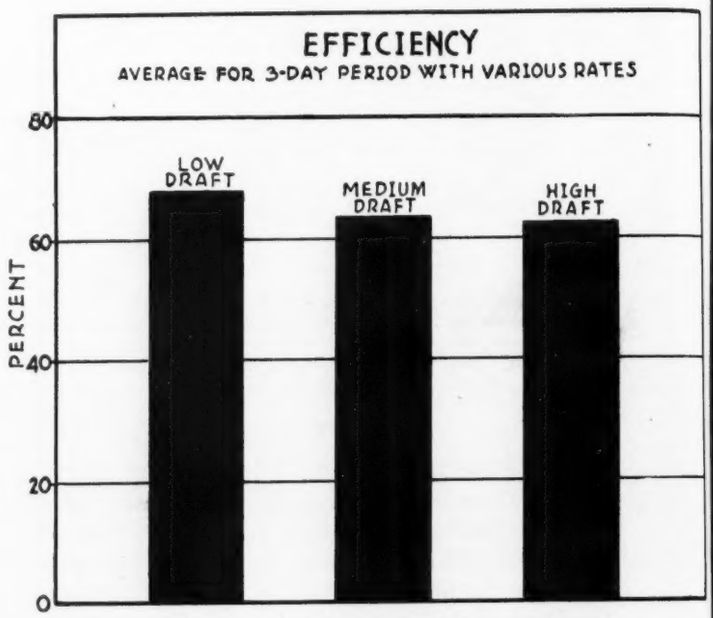


Chart 1—Effect of draft on efficiency with a variation of 10 per cent between high and low draft.

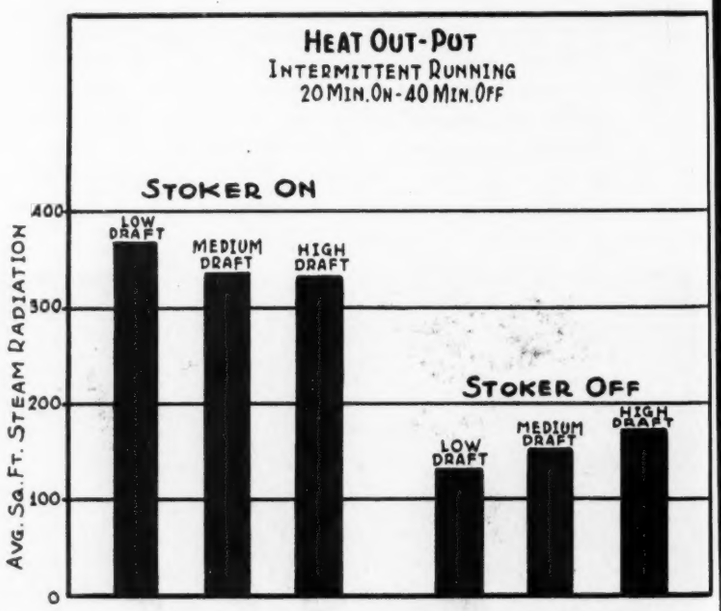


Chart 2—With high draft more heat is produced during stoker "off" periods and less heat during stoker "on" periods. This is not a desirable condition.

the fly ash, and the clinkers. We weighed the unburned coke in the fire box and the loose ash in the fire box.

Each test took five and one-half days and included a continuous run, various intermittent runs, and "Hold-fire" runs. In other words, the schedule was made to include "Off" and "On," and "Hold-fire" as would be found in a home. I will not take time to give you the detailed time schedule except to say that we got a variety of conditions by running continuously one day, then intermittently 10 minutes "On" and 50 minutes "Off" over night, 20 minutes "On" and 40 minutes "Off" the next day, then five minutes an hour "Hold-fire" over night and 30 minutes "On" and 30 minutes "Off" the next day. Over Saturday and Sunday we ran a three-minute-an-hour "Hold-fire." We followed this up by running one and one-half hours Monday morning to see how the fire picked up from the extended "Hold-fire." During the entire five and one-half days the fire was not touched.

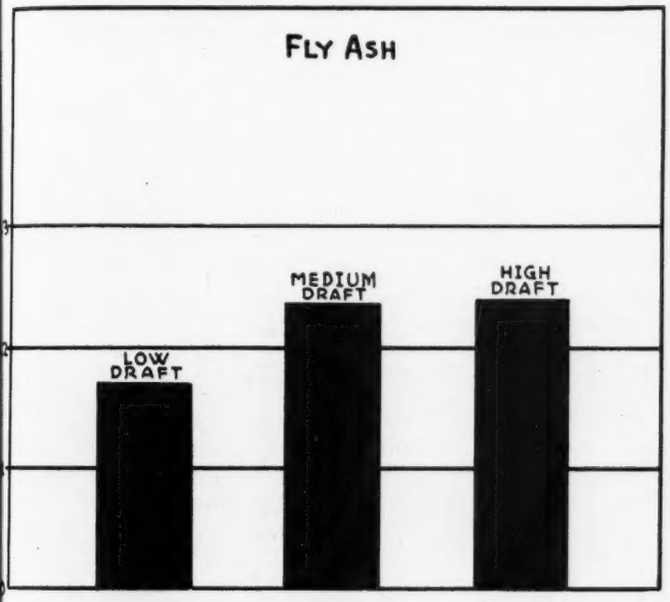


Chart 3—Less fly ash is produced with low draft then with high draft as shown by per cent of fuel burned changed to fly ash.

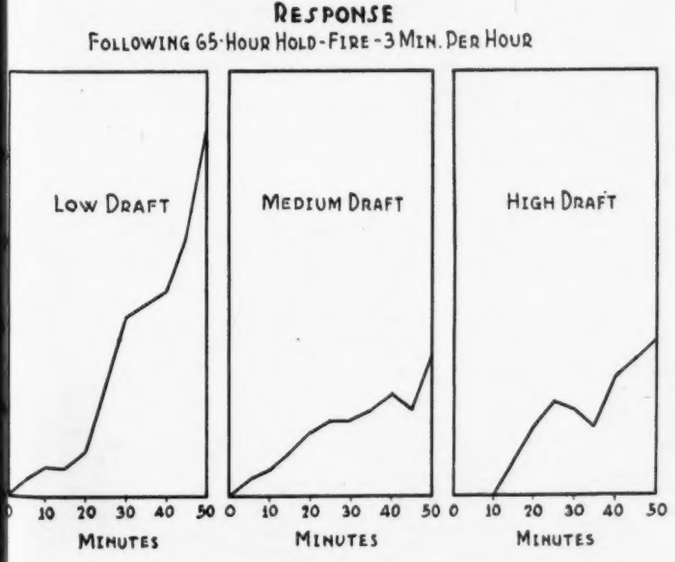


Chart 4—Quick response after long stand-by periods is obtained with a low draft and less response with a high draft.

Let me repeat that the only difference in each week's run—the three about which I want to give you the results—was that we set the automatic draft regulator differently. The first week we set the regulator to give us a draft of 0.02 inches. We called this a Low Draft. The second week we ran with 0.07 inches of draft, called Medium Draft. The third week we ran with 0.12 inches of draft, called High Draft.

Low Draft Shown Best

First as to efficiency. (Chart 1) As was to be expected, we evaporated more water with the same coal when we had the Low Draft setting. How much and how important was it? For the five and one-half day period the difference in efficiency between the Low and High Draft was approximately 10 per cent. In a small home this might not seem too important. If with a proper setting they would burn 10 tons of coal, then with the excessive draft they would burn one ton more —possibly not too much for the home owner to stand, but suppose the installation was in an apartment house using 100 tons of coal a year? An excessive draft would cause the use of 10 tons more than was necessary. This is a sizable excess cost to the owner. Moreover, it really is very important in a small home: first, because giving a person the most for his money is always the best business policy and the surest way to meet competition and; second, because of other better operation factors found with the Low Draft.

With the Low Draft and intermittent running, the heat was obtained when we wanted it, namely, during the "On" period, or what in the home would be a period of running due to thermostat demand. With the excessive draft, less heat was given during the "On" period and more was given during the "Off" period than with Low Draft. In other words, the High Draft kept pulling air through and over the fire even though the stoker was off. This not only resulted in burning down the fuel bed, but gave off heat when it was not wanted and after the thermostat had been satisfied. This certainly would tend towards overheating. (Chart 2).

Another advantage found with the Low Draft was that it gave the best clinker formation. With the Low Draft there was more of the ash in the form of clinkers and less as loose ash.

Still another advantage found with the Low Draft was less fly ash in the boiler tubes. (Chart 3). At the end of the week there was 0.86 pounds

(Continued on page 108)

"Booster" Fan In Cold Air Boot

puts Richardson-Balfe (Terre Haute, Ind.) in competition with straight gravity and gives owners the benefit of forced circulation

WITH the industry considering carefully every possible method for making old heating plants perform more efficiently; for eliminating all superfluous material in new installations; for ideas which conserve fuel—the experience of the Richardson-Balfe Heating Co., Inc., of Terre Haute, Indiana, in selling booster fans may be of interest.

Richardson-Balfe have installed quite a number of booster fans of several manufacturers. They like and have now used for two years the cold air return booster fan of the Autovent Fan & Blower Company because the fan is quiet, durable and lends itself readily to the application ideas of the organization.

The "Booster" Idea Came Thus

The idea of using a booster fan came about from two problems. The first problem was how to make Terre Haute's thousands of old gravity warm air plants perform more efficiently and provide more uniform comfort throughout the room. The second problem was how to meet the intense competition in the new house field.

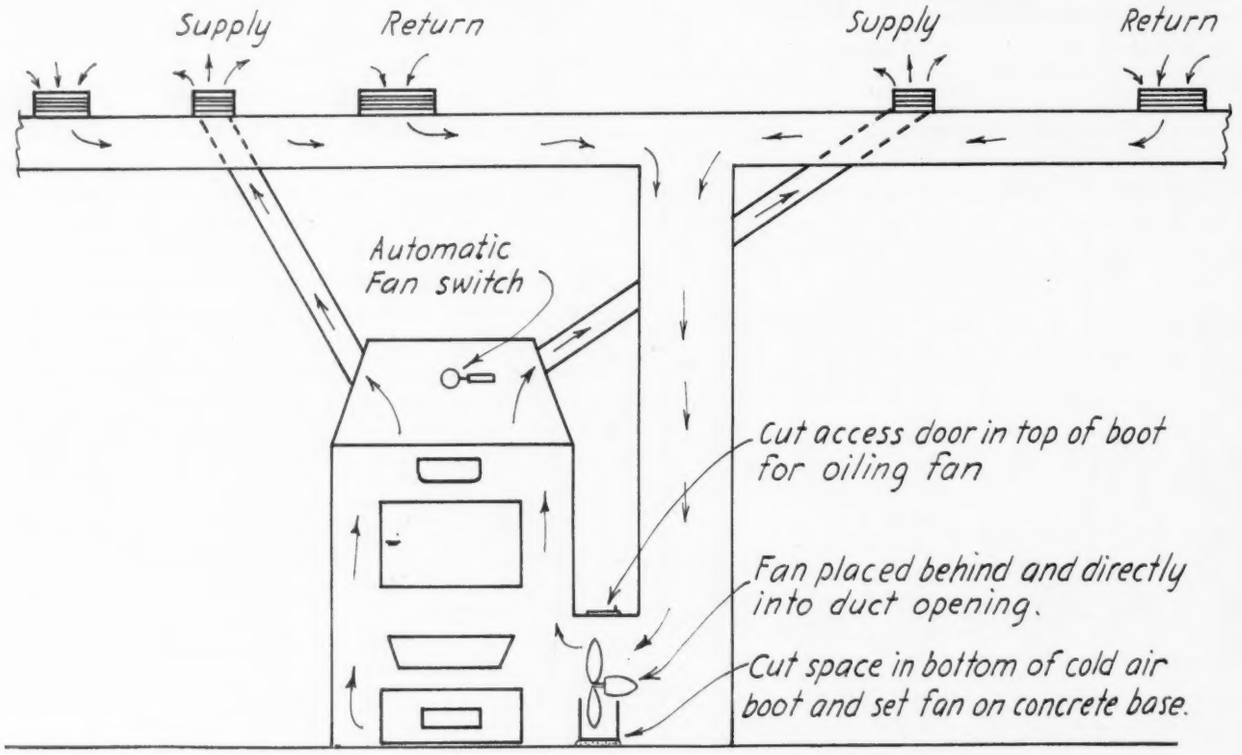
The booster fan, as installed by the company, seems to have answered both these problems.

Old House Complaints

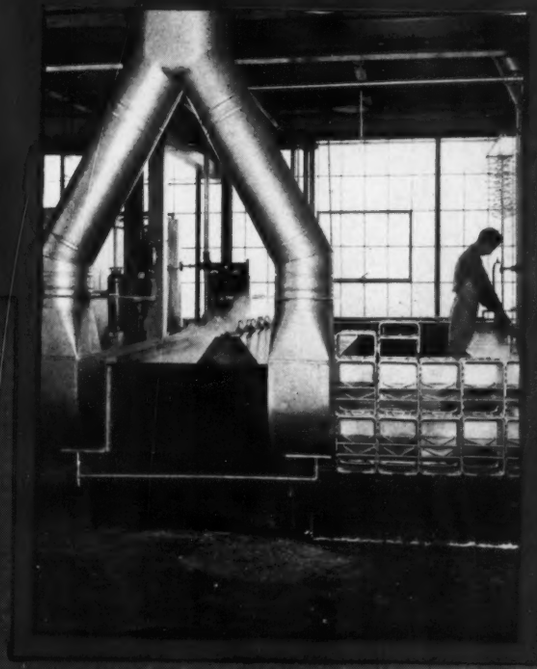
In old houses the common complaint is that such and such a room never has or does not heat up to the rest of the house. Or, that certain parts of principal rooms are too cold for comfort. These two troubles, Richardson-Balfe found, are usually traceable to either undersized pipes or too long, complicated pipes. Pressure and forced flow are the answer to both troubles.

But, unfortunately, true pressure systems are more expensive than many owners wish to buy, so these owners remained prospects and nothing more until the company ventured into booster

(*Continued on page* 110)



SHEET METAL SECTION



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SUPERIOR GALVANIZED sheets furnished by the J. M. & L. A. Osborn Co. under their Golden Star brand were used by Frank Morrison & Son Co. of Cleveland, Ohio in the construction of these new lifeboats.

• Something new and revolutionary is the Morrison lifeboat (illustrated above). Of special interest to landlubbers is its new propelling mechanism which substitutes a hand lever for the long oar. Of special interest to Sheet Metal Workers is the fact that its manufacturer chose regular 12 gauge SUPERIOR GALVANIZED to fill the requirements of his important job. Sheet metal men everywhere like the "clear through" quality and "the way those sheets work." They like the way SUPERIOR GALVANIZED fills the requirements of *their* important jobs.

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Provisioning is a Mighty Important Study in

"Streamlined" Sheet Metal Training

By Ernest E. Zideck
Instructor, Technical School, Jackson, Michigan

IN the making of any sheet metal article we must contend with notch-outs for laps or seams; and in the more complicated unit of work we must provide, in the flat piece of metal before its forming, for holes, slots, cutouts and other such work which may be done best before the metal is converted to its final shape. In the parlance of the sheet metal fabricator, all of the work that is to be done in the flat pieces of metal after they have been sheared to specified sizes and shapes, is called PROVISIONING.

What "Provisioning" Is

Provisioning is the second step in the preparation of metal pieces for processing through the number of operations resulting in the finished product ready for installation or marketing. It consists, as above said, in notch-outs for laps or seams and in holes for rivets, slots for bolts and other such fastening provisions. It includes all kinds of holes being punched or drilled in the blank; openings for other parts to be joined to the first part; openings for electric conduits, or fixtures; for water pipes, spouts and similar components.

But provisioning also consists in radial shearing or bandsawing, in the incorporation in the flat piece of metal of every *cutting,* be the cut along the edge of the metal or be the cut a slot, a hole, a notchout or a slit. Provisioning simply provides the flat piece of metal with *all cuts,* so that no further cutting or hole-making or other such work is required *after* the metal has been braked or rolled to shape.

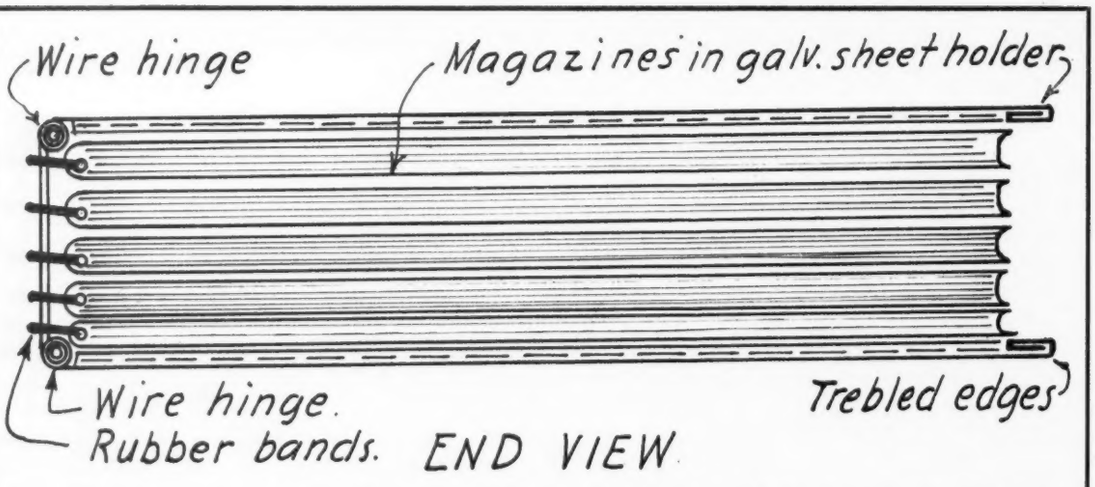
True, in quantity production it has been found that drill jigs may be employed to advantage, drilling rivet and other such holes requiring a close fit, after the piece has been formed. This method applies particularly to rivet or bolt holes in multiple angular formations, in which a mere few thousandths of an inch gained or lost in each of the angle brakings might, and often does, result in bad matching of holes in the several parts joined by rivets or bolts. On the other hand, a carefully prepared pattern by which gauges are set just as carefully on the punch press and the brake will in most cases render the additional costs of making drill jigs and drilling holes after formation of the part unnecessary.

How Provisioning Is Done "In the Flat"

Sheet metal fabricating calls for provisioning being done "in flats." As in shearing, a pattern by which to set the gauges on the notching-punching presses will save much time and result in accurate, uniform output. Provisioning of any volume by chart or blueprint may be all right in sample work—which practically equals pattern-making—but in production (for even a limited number of units) a carefully executed pattern or, a first blank dimensioned and prepared as a pattern would be, the blank then used for setting the gauges (or for marking in hand-provisioning) will save four-fifths of time and accomplish a uniformity in the provisions impossible to obtain by using a ruler and measuring the set-up of gauges or, in hand-operations, marking each notch and hole separately.

Proper "Provisioning" Is a Major Time Saver

Even when only a couple of identical parts are wanted, we measure or lay out one blank and use it for marking the other piece. And when the number of identical parts needed in a construction mounts to a dozen or dozens or hundreds, then it pays to spend a little more time and utmost care preparing the FIRST blank—in other words, the pattern. With such a blank in our hands we proceed to either clamp it on top of several other blanks of same nature and mark the holes by prickpunching through the pattern, marking the cuts and notchouts separately on each of the blanks; or, if we command a small press and dies for notching-punching, we use the pattern for dimensioning the gauges on the press, with no separate markings needed, the gauge-set-up for each varied operation doing the notching and the



The above construction is made of tin or galvanized sheet, the top and the bottom desks provided with trebled edges on three sides and notchouts for hinge—on-wire on the fourth side. The corners are filed round, soldered. The rear portion is best made of a wire frame inlaid in metal, the top and the bottom having notchouts reciprocating those of the two desks. The hinge construction allows for opening the holder, spreading it flat.

Magazines are held within the holder by medium-heavy rubber bands inserted between the pages of the volume and spread out over the top desk, holding the magazine tight against the rear wall of the holder.

punching exactly as provided for in the pattern, and doing it smoothly and rapidly.

Provisioning in sheet metal work may be simple, or it may become a vast proportion of work, depending on the article which we fabricate. In the construction of the drinking cup, for example, we need to do the following: notch out for lap or seam, inlaid wire or mere doubling of metal reinforcement; cut the corners where the bottom overlaps, doing away with the fourfold thickness of metal in a seamed joint if such a seam is contemplated in the body of the cup; and provide the piece of metal sheared for the handle with cut corners which render the reinforcement of the handle unobstructive in bending a portion of the metal for lap and flattening the other end of the handle for soldering to the cup.

Production Hinges on Provisioning

In a piece of metal furniture such as a locker there is much more provisioning to be done. Aside from notch-outs for seams and laps and reinforcements of the edges, provisions must be made for fitting the several parts one into the other, snugly, the metal tight against its counterpart, facilitating either riveting or spotwelding. If riveting or bolting is contemplated, holes must be provided in the several parts which join and hold together by these means. There undoubtedly must be provisions for door hinges to fasten, the lock to function, shelves to hang on, hangers for clothes, ventilation. In any kind of multiple parts construction the provisioning work might be most exacting, not only because of the great number of varied operations required but also to insure the accuracy required.

In a fairly well equipped shop there are usually several small presses at work simultaneously, one set for notching, the other for punching or slotting, the third for radial cutting, etc. The blanks forwarded from the shears travel from press to press, and are rerouted many times before all the operations, each by a new set-up, are completed.

Gauges More Important Than Machines

The operation of these presses or provisioning machines is not difficult to learn. Any new employee having had no previous experience may be shown and inducted into the work in no time. It is more of a problem to make the operators understand why it is necessary to handle the sheets without scratching them, why the metal must be pressed hard against the gauges on either side, why the metal must be on a level with the die or gauge, why no hammering must be done on the press while the work is in progress, why there cannot be tearing of the sheets away from the punch and bending the metal and why the notching-punching must be done as fast as the sheet or piece or part can be handled.

The operator who learns all of the above and does the operation to requirements and to schedule must yet be taught the most difficult part of the work, that of "set-up." In many shops a specially trained set-up man is at work doing the set-ups for all the operators. But while he is doing it they stand idly by, losing time. They'll depend on the set-up man to do the adjusting of the die or the gauge for them, stopping work and waiting for him to come around. In a busy shop employing several small presses for provisioning tasks the institution of a special set-up routine has proved too costly and time-wasting to be maintained.

The need today is not for labor by which to do machine-like, irresponsible operations. The need is for *skilled or at least semi-skilled* operators who understand the work they are to perform, as a whole, and as separate operations.

Press Provisioning Without Presses

In the training of men for sheet metal work, that phase of the work having to do with *provisioning* must not be slighted. Much information may be given the student as to the important role provisioning plays in the construction of goods. Instruction should be given covering the whole subject, from why notching is done and why it must be accurate; from why holes are punched or slots provided in flats; from why all *cutting* must be done before formation of the part; to the why and how of the die and gauge set-up.

All of the above can be taught the student even in a class room or a school shop where there are no presses or machines on which to demonstrate. The understanding of the importance of provisioning and of the means by which it is done gives the student more value than has the man who has spent years doing the same bit of work but who is unable to discern an error or misadjustment or do work under a handicap.

"Hack Saw Fitting" Is Inexcusable

Provisioning work is demonstrable in the school shop. It must be pointed out to the students in all work they do, in all the small and larger constructions they may engage in. Provisioning has been a neglected subject in the class room, and the result has been that many students, even after a period of training, try to make a cup or a funnel or a box without the least attention to notch-outs and other provisioning, hack-sawing and chiseling and filing after the thing has been formed and found not fitting. Many of our second rate mechanics will do the same thing. Instead of provisioning in advance, they will try to make the parts fit after forming.

Many workers in sheet metal excuse their lack of understanding of the fundamental principles of sheet metal work by the phrase: "I can do any sheet metal work but the layout." But this is seldom the case. The majority of these men are actually only half-trained mechanics who try to make the thing fit by hack-sawing and chiseling and filing after the metal has been formed.

The layout proper gives the true dimensions and true placements of provisions. Sheet metal workers do not need to be layout men to know, from experience, that notching for seams is never absent from any composite construction at which they work. It is not the ability to lay out as much as it is the understanding that provisioning must be done in advance of forming to make his work smooth and fitting that marks the real sheet metal worker.

In the class room and the training shop the subject of provisioning the blanks *prior to their braking or rolling to form* must be taught extensively and with emphasis, because the green students—many older men, too—are impatient of the preparatory work and would rather see the object of their work assume shape. The hurry might be laudatory—but in sheet metal work it inevitably leads to the junk pile.

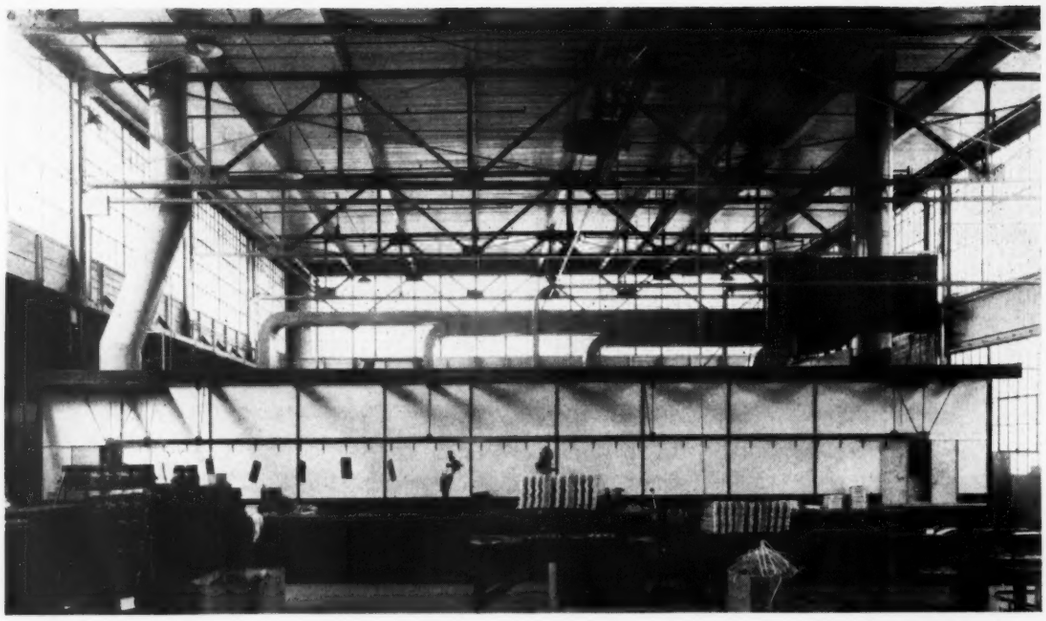
Manufacturers Should Use Inventories Pending Deliveries

PRIORITIES DIRECTOR STETTINIUS says that manufacturers are expected to use inventory materials on hand to begin production, while waiting for material being delivered under preference ratings, if such action will be helpful in meeting required delivery dates.

In such cases a manufacturer may begin production, using his inventory materials, and then may replace this used-up inventory with the preference-rated materials as they arrive.

In such cases, of course, the manufacturer should be sure that the quantity of material ordered under a preference rating, and used to restock inventory, is no more than the amount which he has used to complete the order.

Mr. Stettinius added, however, that this interpretation applied only to current production where there is definite identification of the defense item against which a preference rating has been obtained or applied for. Any effort to obtain inventory based on past consumption of material must be carried out through the usual use of the Defense Supplies Rating Plan.



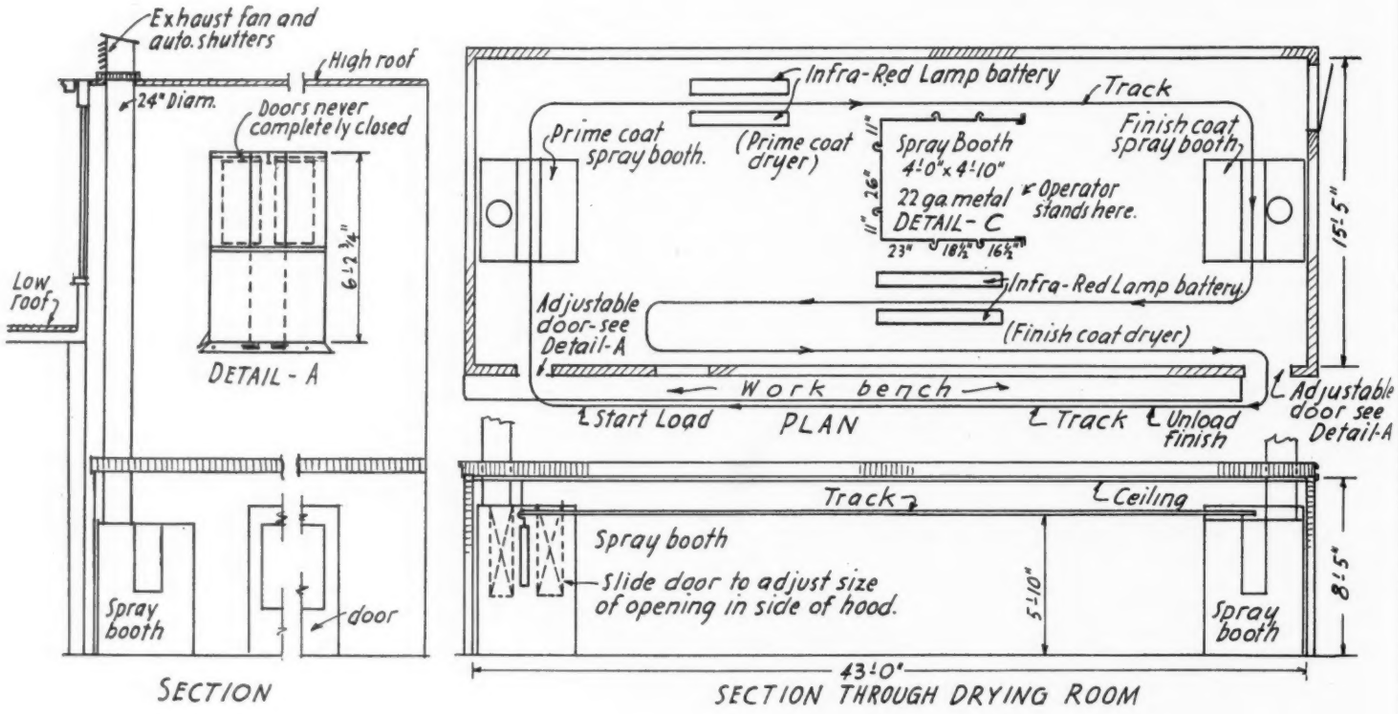
Above—Exterior of completed dryer room, built of wood framing and pressed wood panels and air tight. Below—Plan and elevation of dryer room showing spray booths, infra-red batteries and product track. Photo shows air supply system and filters; also the two booth exhaust risers.

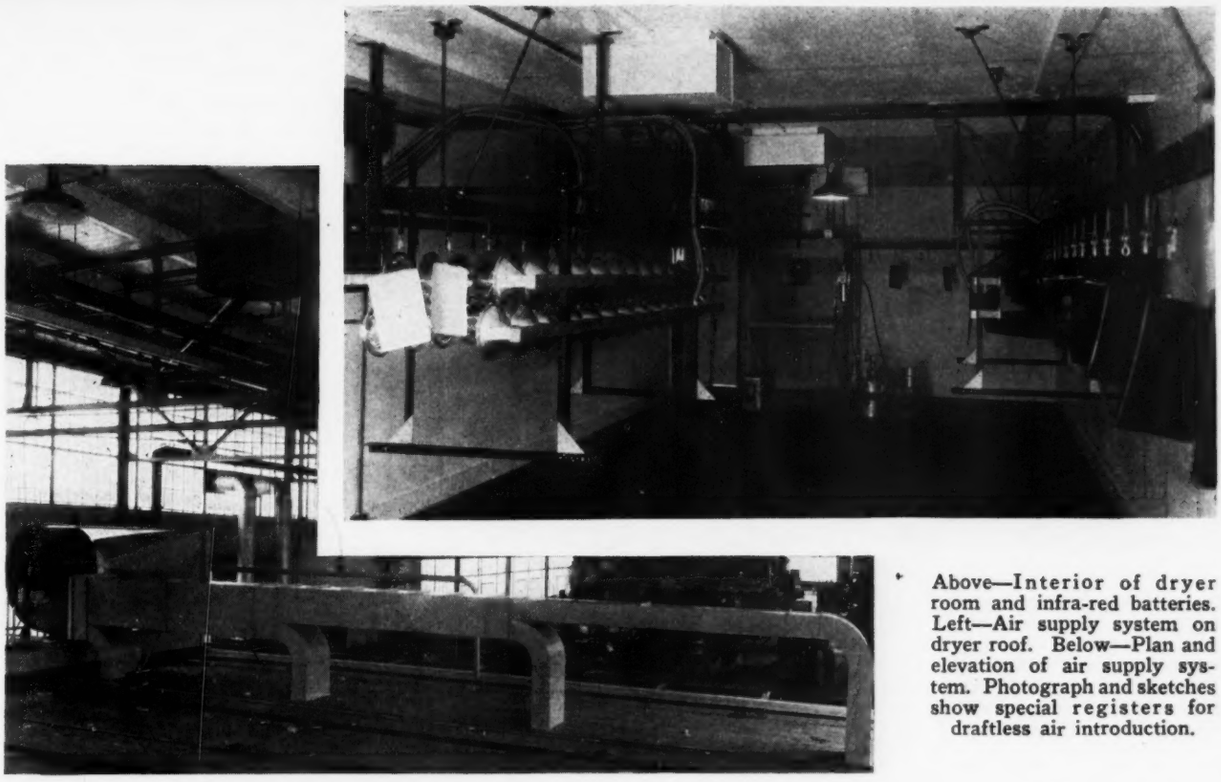
Paint Dryer Room Ventilating System

GALESBURG Sheet Metal Works, Galesburg, Illinois, recently completed an interesting contract involving the building of a products finish drying room with forced ventilation; an exhaust system for a battery of three plating tanks; an exhaust system for a plating battery where a rust-proofing application is made; an exhaust system for a tank in which outboard motors are tested under their own power.

The plant in which this installation was made is Gale Products of Galesburg, manufacturers of outboard motors, refrigerator and condensing units, air conditioning units, and numerous other products.

The interesting feature of this installation is that all the tanks, the dryer, the exhaust and ventilating systems were especially designed for each process—the engineers of Gale Products and C. H. Lauerman, owner of the Galesburg Sheet Metal Works, collaborating and pooling their ideas and

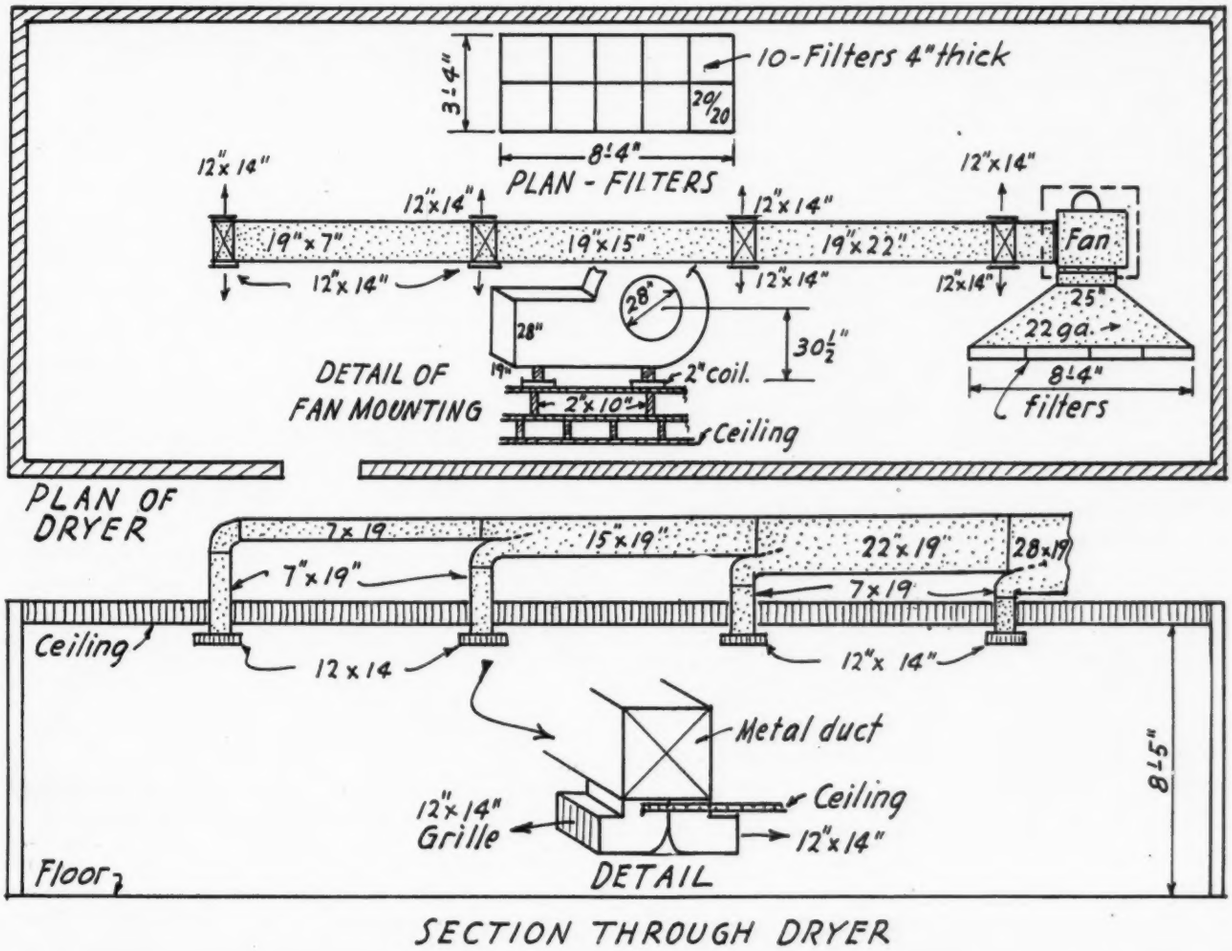




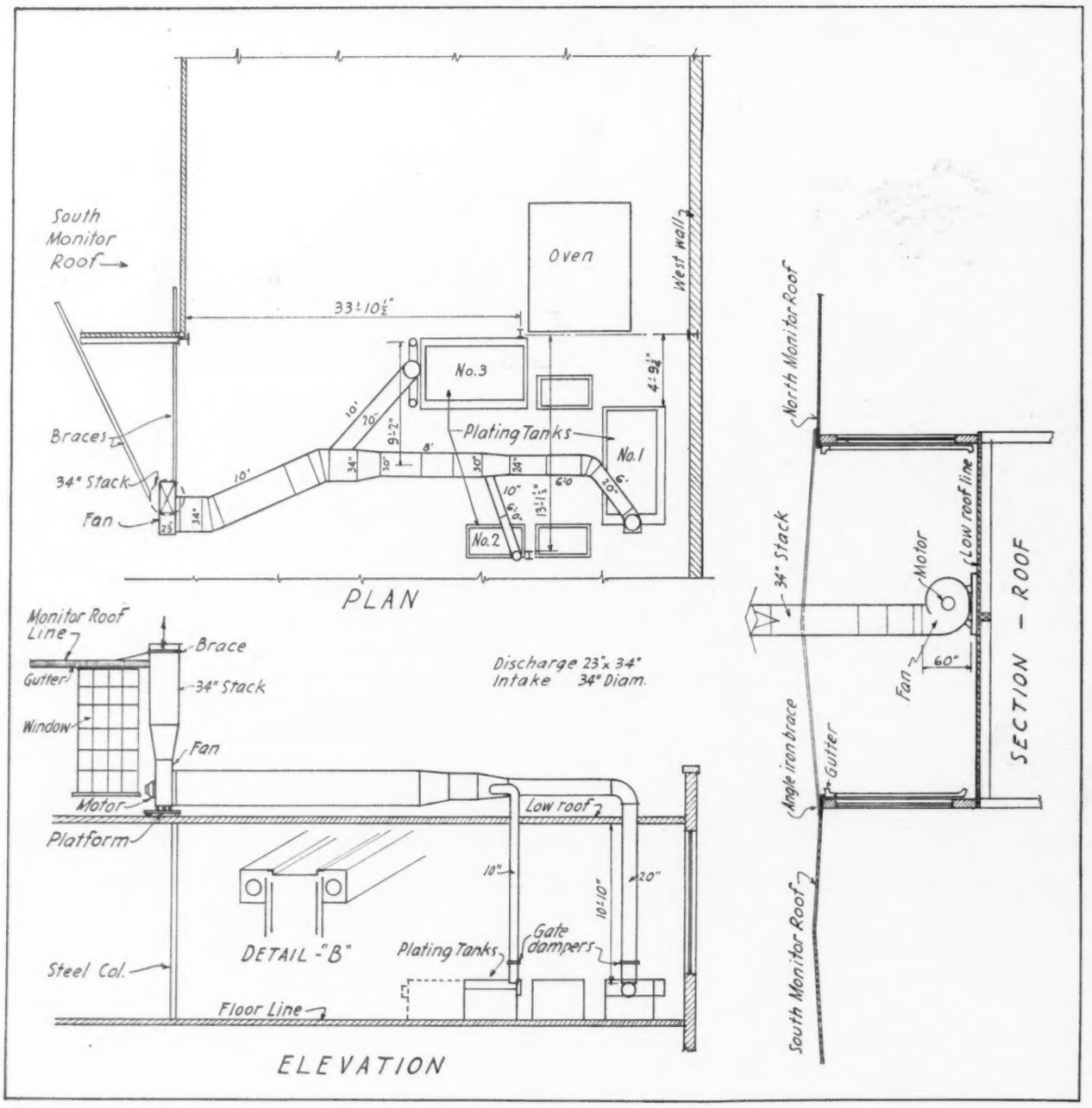
Above—Interior of dryer room and infra-red batteries. Left—Air supply system on dryer roof. Below—Plan and elevation of air supply system. Photograph and sketches show special registers for draftless air introduction.

knowledge. Also, most of the equipment was fabricated complete in the Lauerman shop.

The details of design and installation are readily understood from the photographs and drawings. What little explanation is required can best be presented by taking one process at a time. For instance, the finish drying room. The drying operation employs that newest method—infra red lamps. The operation roughly is—the infra red lamps are arranged in batteries as shown in the dryer interior photograph and on the dryer plan. The product, with finish wet, travels through the lamp batteries and within a few minutes is completely dried and ready for handling. A special paint finish, of course, has to be used; this paint dries from the bottom of the coat outward; the infra red rays penetrating the paint film, strike the surface of the product and in coming back out



SECTION THROUGH DRYER



Plan and elevation of plating tank group exhaust system. See facing photographs for details. Air is withdrawn through side tank slots to exhaust main on roof and roof exhauster. The fan is an Ilg blower.

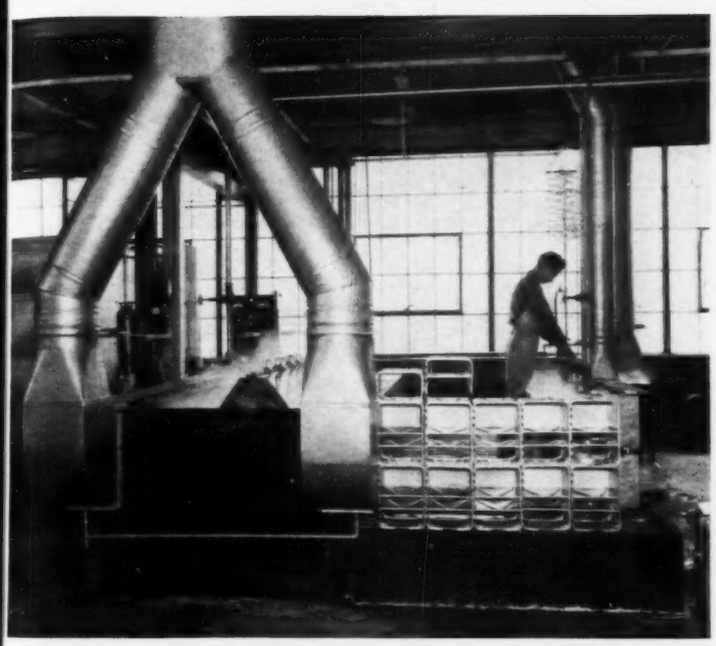
through the film dry it. Infra red drying does in minutes what natural drying requires hours to do.

The plan and elevation show the general construction and layout of the drying room; also the construction of the two spray booths (one for prime coat, the other for finish coat) and the track along which the pieces travel from loading table to unloading table. One feature successfully worked out is the adjustable doors which permit adjustment according to the size of the pieces being finished. The idea is to prevent undue dilution of inside room conditions which would occur if small pieces entered and left through large openings.

The drying room is built of wood framing and pressed board and is air tight. Air is forced into the room by the blower and duct system shown in the photographs and sketches on top of the dryer room. The air is cleaned by the filter battery and is introduced through draftless grilles especially constructed as shown in a detail. Approximately 15 per cent more air is introduced than is exhausted by the two exhausts from the two spray booths thereby preventing entrance of dust into the dryer. The spray booth stacks rise to the roof where exhaust fans in louvred housings cap the stacks.

Plating Tank System

Some of the products manufactured in the Gale plant must be plated and for this process a bat-



Plating tank fume removal system in operation showing clear atmosphere above tank and, above, the Ilg exhauster with weather protected piping.

tery of three tanks arranged as shown in the plan and elevation and pictured in a photograph are employed. The operations are such that the entire surface of all three tanks must be open and this, in turn, necessitated the use of side tank hoods and tank edge slots for fume collection. Exhaust must be large enough to keep fumes from rising above the tank to the operator's face.

The fan, main ducts and exhaust stack for this battery are also located above the roof as the drawings and photographs show. For minimum interference the side slots connect to vertical risers which extend through the roof and form a single main pipe to the blower from which the short stack with rain canopy extends just high enough to clear adjacent monitor roofs.

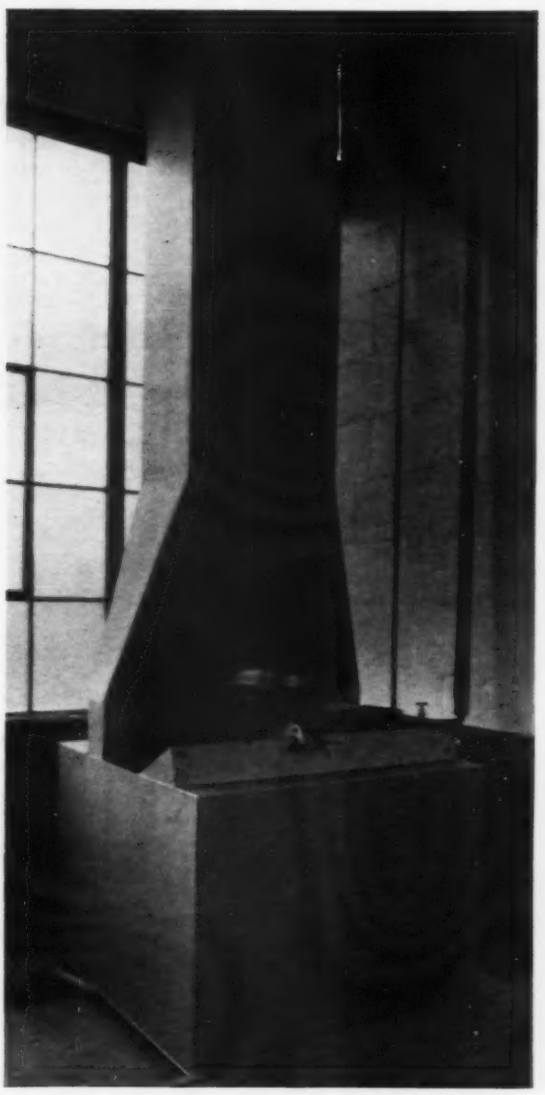
The plans, elevation, details and two photographs show all features of this system clearly. To insure complete removal of the fumes the blower has a total capacity of 11,000 cfm, which insures a minimum velocity along the slots of 2,400 feet per minute. The photograph shows that this velocity nicely clears the air above the tanks. Suitable slide gates in all four risers permit using part of the battery while some tanks are idle.

Motor Exhaust Stack

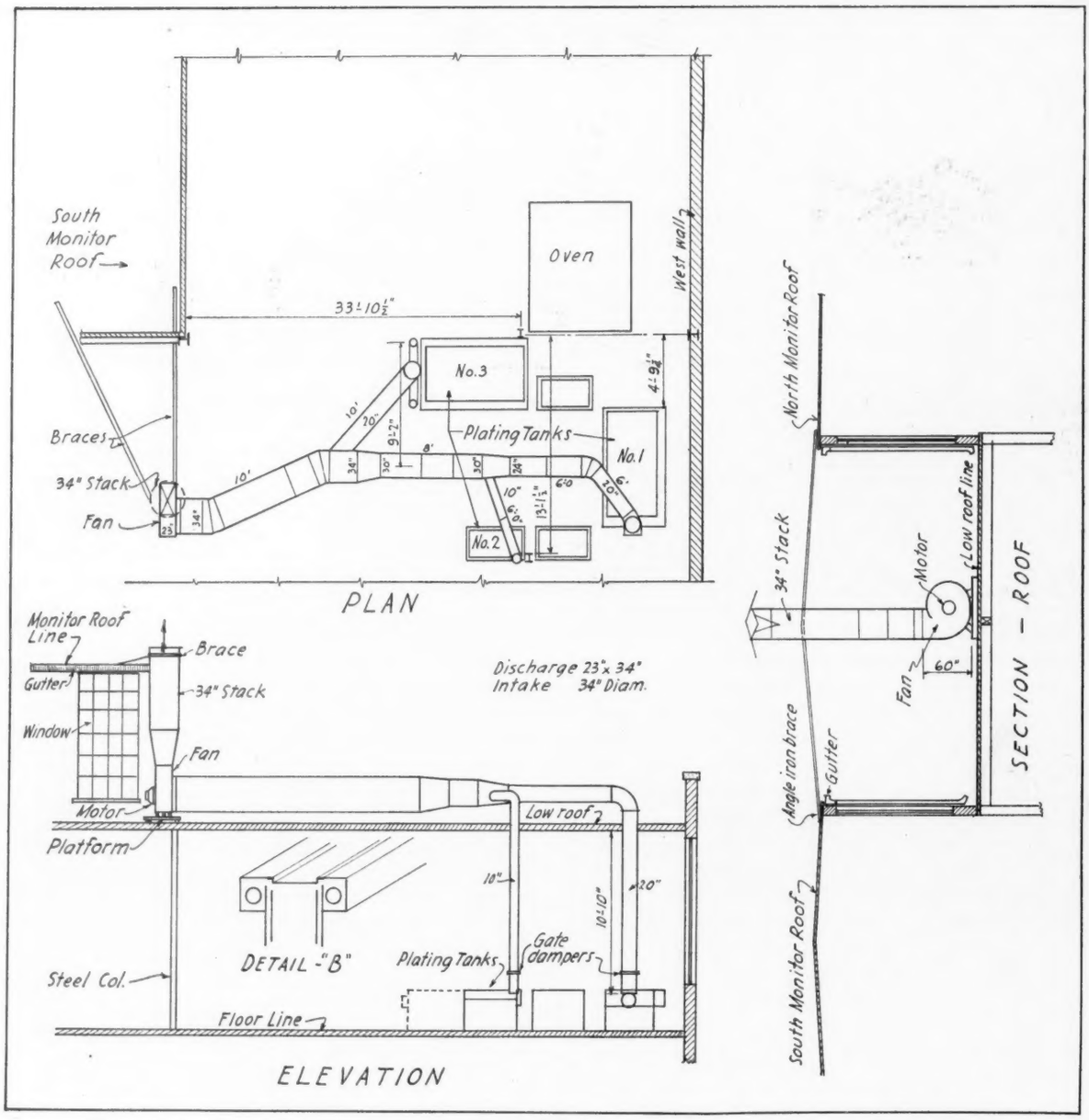
Gale Products manufactures outboard motors and, of course, motors have to be tested. For this purpose a special tank is used, as one photograph illustrates. Exhaust fumes from the motor are removed by the stack and hood which passes up through the roof to a housed power roof ventilator with automatic shutters. There are three of these tanks and the three exhaust ventilators appear in the background of the Alrock tank exhaust fan and stack.

Rust-Proofing System

Several Gale products must be rust-proofed and



Tank and motor exhaust hood for testing outboard motors. A housed Ilg fan on the roof provides positive exhaust.



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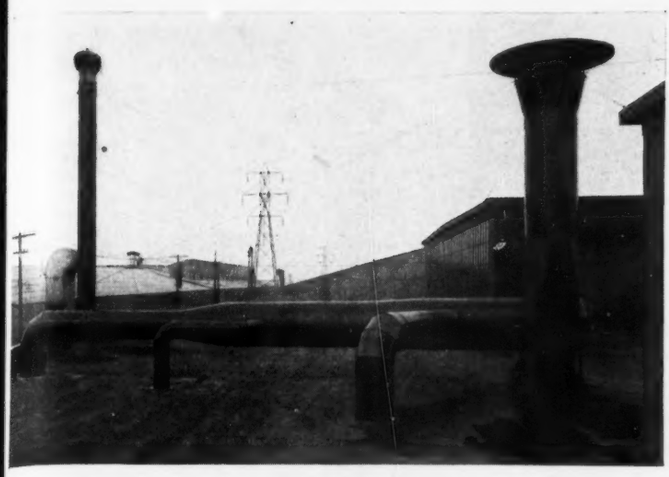

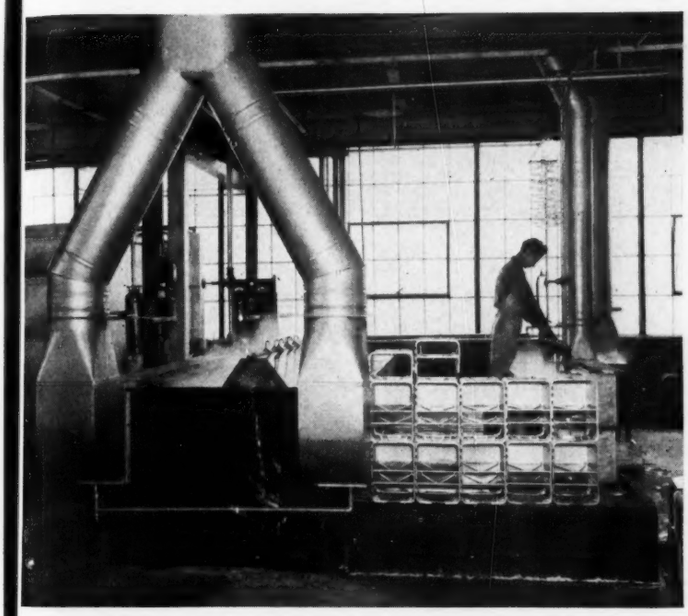

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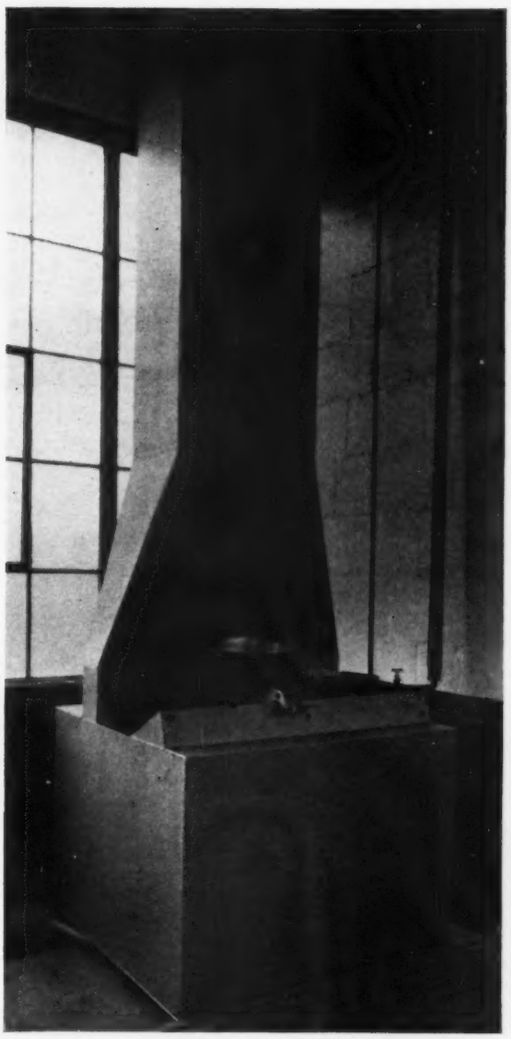

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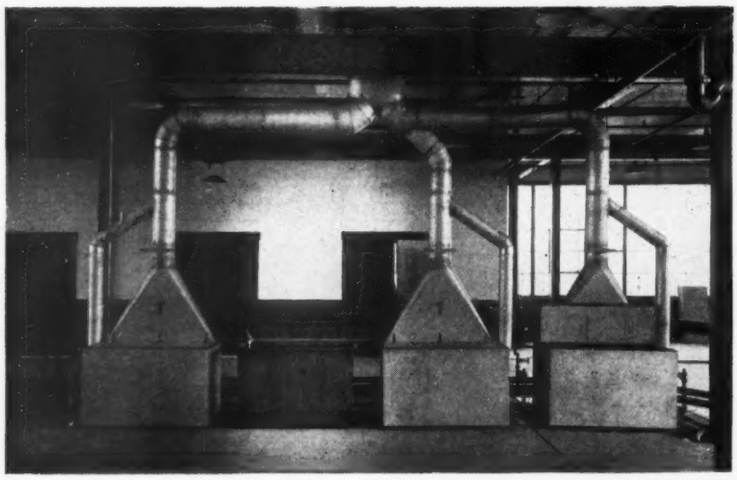
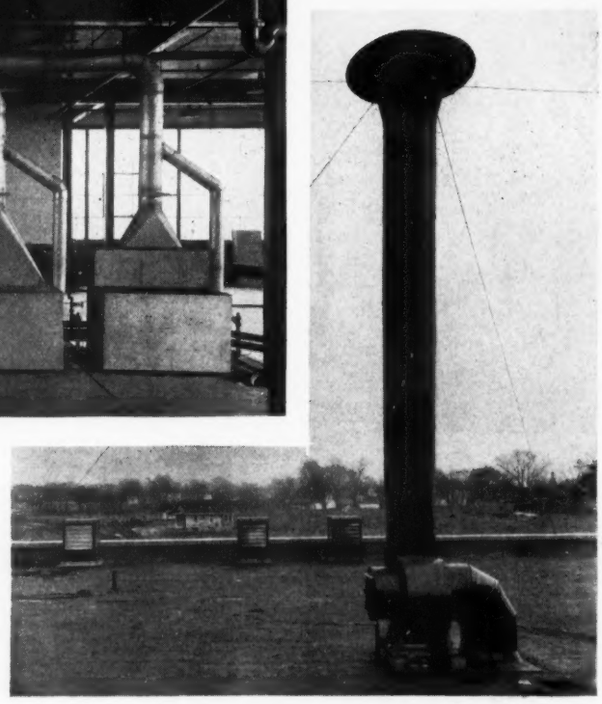


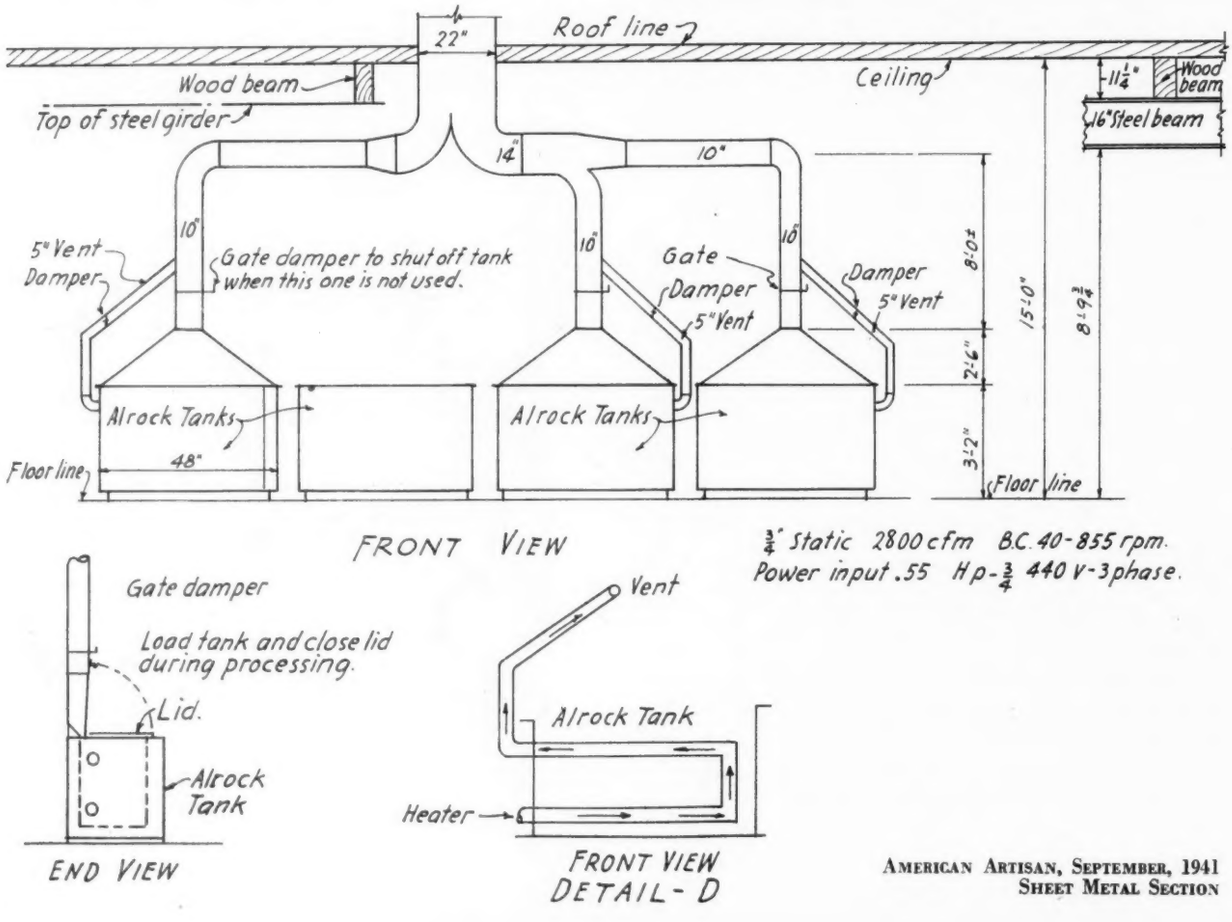


Views of the rust proofing tank battery with lidded tanks, vents for tank heaters, the Ilg exhauster on roof. The sketches below show details of construction, pipe sizes, tank details and data of the fume removal system.

for this purpose a tank dipping process is employed. Three tanks are used, arranged as a battery, as shown in a photograph and elevation sketch. This is a closed process in which the product is immersed and the tank closed. Fumes and heat given off are removed by the hoods and exhaust system shown. The three tank stacks form a single main riser which connects to a roof-located exhauster and stack, again high enough to clear adjacent monitors.

The liquid used in this process must be heated so the tanks are built as shown in details with flue passages running from the heater through the tank and back and ending in a vent pipe which connects into the hood riser.

These tanks, with heat flues, hoods, lids and the exhaust systems were designed and built by Gale engineers and Mr. Lauerman. What was built and how are clearly shown in the photographs and sketches.



30 Common Finish Complaints—Their Causes and Corrections [Part 2]

The Sherwin-Williams Co., Cleveland, published a booklet, "Complaints—Causes, Corrections in Products Finishes" which is considered, in the finishing field, as interesting and useful. By permission of Sherwin-Williams, we reprint the booklet in two parts. Part I appeared in August.

LACK OF ADHESION BETWEEN COATS

Cause

A. Primer and enamel not recommended for use together.

B. Primer dries too hard either due to inherent drying quality, or long aging prior to application of finish coat.

Remedy

A. Use properly recommended system.

B. Roughen primer with sandpaper or steel wool. It may even be necessary to use a reducer of higher solvent strength in the finish coat in order that a tooth can be obtained in the primer film.

BRITTLENESS

Cause

A. It is often difficult to differentiate between "lack of adhesion" and "brittleness" in evaluating some film failures. Other than inherent brittleness or lack of adhesion in a finish, the cause for each complaint will be the same.

B. Improper baking. If complete polymerization of film has not been effected, brittleness may follow.

Remedy

A. See "Lack of Adhesion."

B. Check oven operation and follow baking instructions.

FLAT SPOTS

Cause

A. An absorbent type putty has not been sealed in and, accordingly, causes top coat to strike in.

B. In some types of ovens, the temperature may not be at all uniform, causing over-baking at some portions of the finished object.

C. There may be chemical substances upon the surface which would tend to dull the gloss. In the case of urea formaldehyde enamels, the action of trichlorethylene degreaser fumes causes flatting.

D. Foul ovens.

E. Slight wrinkle in spots caused by addition of too much drier.

F. Oily or dirty surface.

G. Certain types of metal, such as Galvanneal and terne plate may cause flatting in spots during baking operation.

Remedy

A. Seal the putty.

B. Ventilate the oven and circulate the air within it. Have oven checked by competent engineer.

C. Make sure that surface is carefully cleaned before finishing. In case of fumes attacking film, remove the source of fumes from close contact with oven.

D. Provide proper oven ventilation.

E. Use less drier.

F. Provide clean painting surface.

G. The flat spots, resulting from improper pickling or other causes can usually be eliminated quickly by proper cleaning.

TOO MUCH SPRAY DUST

Cause

A. Wrong solvent blend.

B. Excess spray pressure.

C. Over-reduction of material.

Remedy

A. Usual remedy is to choose a slower evaporating thinner.

B. Reduce pressure.

C. Use less reduction. Add fresh material to that which has already been over-reduced.

EXCESSIVE BODY

Cause

A. Any material which will dry in the presence of air at normal temperatures will tend to take on body by virtue of the oxidation which takes place.

B. Even a straight baking type enamel will tend to take on additional body due to evaporation of solvents.

C. In the more advanced stages of oxidation, a livering action often occurs which is aggravated by the too swift addition of extra thinner. It should be remem-

Remedy

A. If bodying of the material has not proceeded to the point where there is livering action, it is often possible to bring the thickened particles back into solution by addition of a stronger solvent from the same solvent classification.

B. Add proper solvent to bring liquid to proper viscosity and body.

C. If a definite livering has occurred, it is not easily feasible to reclaim the material.

bered that thinner should always be added slowly and the mixture stirred at the same time.
D. Use of improper solvent.

CRACKING OR CRAZING OF FILM

Cause

A. Application of long-oil material over a very short one, or vice versa.
B. Application of too heavy coats.

EXCESSIVE MARRING

Cause

A. Film not completely dried.

DISCOLORATION

Cause

A. Overbaking in either time or temperature.
B. Presence of foreign vapors.

EXCESSIVE PRINT

Cause

A. Insfficient drying time.
B. Under-baking.
C. Too heavy a coat.
D. In some cases, the addition of too much drier actually retards drying of film.
E. Slow drying due to poor drying conditions.

DIRTY OR SEEDY FINISH

Cause

A. Unclean conditions of application.
   1. Dust in paint room.
   2. Dirt in air or paint lines of spray apparatus.
B. Improper solvent which tends to throw resin out of solution.
C. Material has been subjected to extreme cold which tends to throw some particles out of solution.

ORANGE PEEL

Cause

A. Use of improper solvent for prevailing temperature condition.
B. Improper handling of spray equipment.
C. Application of too thin a film not allowing proper flow.

BLUSHING (OF LACQUERS)

Cause

A. Separation of cotton due to:
   1. Humid weather.
   2. Drafts.
   3. Poor thinner.
   4. Lacquer sprayed when cold.
   5. Damp spray rooms (generally concrete floors at ground level).
   6. Moisture in spray equipment.

GUM BLUSH OR HAZE (OF LACQUERS)

Cause

A. Incorrect thinner (not necessarily a cheap one).

OIL-BLOOM (OF LACQUERS)

Cause

A. Rubbing down with oil before lacquer is thoroughly dry. Absorbed oil floats to surface later.
D. Use recommended thinner.

GENERAL: The primary cause of excessive bodying is, in most cases, improper handling of dip tank or other storage facilities. A method for keeping all storage tanks tightly sealed should be arrived at and carefully adhered to.

Remedy

A. Make sure that materials used comprise a definite approved system.
B. Apply only sufficient material to accomplish full covering.

Remedy

A. Allow for more complete air drying or baking.

NOTE: Use mar-proof quality if practical.

Remedy

A. Check oven temperature carefully.
B. Investigate the nature of any vapors which might be present. It will then be necessary to shield off the vapors from contact with the finish.

Remedy

A. Allow longer air drying.
B. Bake more thoroughly.
C. Apply lighter coats.
D. Cut down on drier addition. Check to be sure that correct drier is being used.
E. See reference to "Non-drying or Poor Drying."

Remedy

A. Cleanliness.
   Rearrange equipment so that any spray dust from booths does not reach drying chamber.
B. Use the proper recommended thinner.
C. Allow material to reach 75°F. before applying.

Remedy

A. Choose a solvent which will allow greater flow.
B. Adjust air pressure and fluid flow and be sure that gun is held at proper distance from work.
C. Apply heavier film.

Remedy

A. A combination of factors tend to cause blushing and, likewise, a combination of factors may be used to remedy the difficulty:
   1. Close windows, and add retarder to thinner or use a better one.
   2. Bring the lacquer to room temperature.
   3. Blushing caused by condensation of water and subsequent evaporation from cold spray rooms can be avoided by warming up the room.

Remedy

A. Use the correct thinner as recommended by manufacturer of the lacquers.
   NOTE: Both blushing and gum blush can almost always be removed on finished articles by spraying a thin coat of reflow thinner over the affected parts.

Remedy

A. Allow longer drying time. Bloom can be removed sometimes by washing with gasoline or spraying thin coat of clear. Allow to dry and re-rub.

WHITE SPOTS

Cause

A. Water mixing with the lacquer either through the separator or by not having the surface dry.

Remedy

A. Clean air line and separator. Be sure surface to be finished is dry.

BROWN SPOTS

Cause

A. Oil coming through separator.

Remedy

A. Cleanliness.

PIN HOLES OR BUBBLING

Cause

A. Drafts which cause surface drying and force the solvent to break through that surface film in order to evaporate.

Remedy

A. Avoid drafts.

B. Fine drops of moisture coming through separator in spray apparatus.

B. Clean spraying equipment.

C. In the case of woodfinishing, either the solid wood or the veneer may be improperly kiln dried.

C. Only solution is to cure wood properly.

D. Thinner evaporates too fast.

D. Use slower thinner.

E. Porous surfacer or fillers.

E. Use tighter surfacers or else seal it before applying finishing coat.

F. Incomplete drying of filler. Strong solvent in finishing coat tends to react with undried filler.

F. Use a faster drying filler or allow greater drying time or arrange to dry at elevated temperatures.

G. Spots of grease on surface.

G. Clean surface carefully.

H. Material applied while frothy, following violent agitation.

H. Allow froth to subside before applying.

WRINKLING OF A SMOOTH ENAMEL—GAS CHECKING

Cause

A. Too heavy a coat.

Remedy

A. Apply light coat.

B. Addition of too much drier.

B. Use less drier.

C. Some materials may not satisfactorily be applied in the sun.

C. Apply in shade.

D. Foul ovens cause some materials to gas check.

D. Improve ventilation of oven and adjust the gas and air mixture.

BLEEDING

Cause

A. Organic red pigments or various dyes used in stain or undercoats have not been sealed properly.

Remedy

A. Best remedy is to avoid use of bleeding colors. Where bleeding colors have been used, a shellac type sealer usually tends to seal the bleeding better than varnish or lacquer type sealers.

RAISING OR BLISTERING

Cause

A. Sometimes strong solvents tend to react with preceding coat.

Remedy

A. Be sure that the undercoats are thoroughly dry.
Use primer recommended.
Use thinner with lowest solvent strength which will act as steady diluent.

EXCESSIVE SETTLING

Cause

A. Over-reduction or improper thinner.

B. Too rapid addition of thinner, causing break.

Remedy

A. Follow thinning instructions.

B. Add thinner gradually, stirring constantly.

EXCESSIVE CHALKING

Cause

A. Finish coat applied over porous surface which absorbs the binder and leaves unprotected pigment at surface.

Remedy

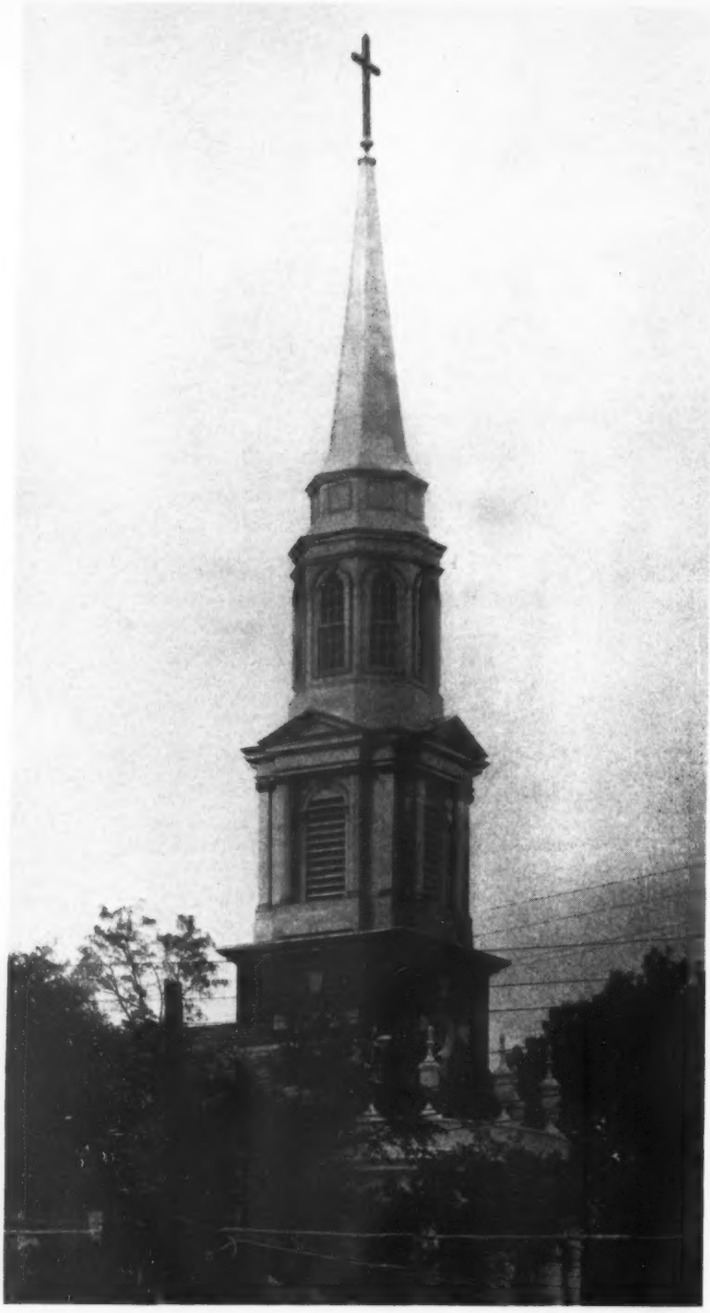
A. Seal porous surface thoroughly before application of finish coat.

Substitute Aluminum Rod

THOSE faced with the emergency repair of aluminum casting or aluminum assembly, without sufficient rod on hand may find the following suggestion a temporary expedient for doing the work.

Fairly satisfactory rod can be made by remelting aluminum scrap, such as old machine parts. The scrap is melted in an iron pot or crucible, using the blowpipe flame as a source of heat. When the metal is molten, the dross or oxide film is first poured off. Then the balance of the metal is poured in an angle iron so as to form a cast rod.

Rod made in this manner is less pure and somewhat softer than regular grades of aluminum rod and requires more flux during welding. However, the homemade rod does provide a fair substitute when it is impossible to obtain aluminum rod specially manufactured for welding.



An All Stainless Steel Church Spire On an Ornamental Base

THE only all-stainless steel church spire the editors have heard of is shown in the photograph and drawings. The church is the M. E. Church in Ozark, Alabama, designed by Architect H. L. Holman, Jr., of Ozark.

Even more interesting is the fact that all the stainless steel cover was practically hand-made by sheet metal mechanics in the shop of the Valentine Machine Company of Ozark. Only the ornamental urns, columns, capitols and column bases were purchased from Miller & Doing, New York.

In brief, the spire is built around a structural steel frame. On this steel work the Valentine company built a wood outline frame to which the stainless steel was applied.

From the brick work (see photograph) up to the cross there are 2,848 square feet of stainless steel, or 2,243 pounds, 18-8 Type 302 in number 2B finish. The cross is built of 32-ounce copper covered with gold leaf. The belfry is square (24 feet on a side) ornamented with protruding columns and gables and louvred openings. Above the belfry is an octagonal spire base with windows and the spire proper. From the brickwork to the tip of the cross is 63 feet.

As stated, most of the work was shop or field hand-made. R. E. Valentine says in describing the procedure—"Shop drawings and details were made as the job progressed. For most of the work we used customary procedure, attempting to fabricate in the shop sections for unit erection whenever possible. Where this was not feasible, the piece was cut and fitted on the spire.

Base Ornamental Work

"The column caps and bases stamped by Miller & Doing came to us in sections cut and ready for assembly which we did by soldering with a strip behind each joint for strength. The column section was rolled from a flat sheet with a lock joint and is uniform in cross section throughout the length. The louvres of the belfry were constructed in complete sections in the shop and erected as units.

"The cornice above the louvres and gables was erected as sections delivered to the job. The outline of the square section and the octagonal section for the windows was first built of wood, which gave us a foundation on which to apply the stainless steel.

"All moldings were formed on our shop brake; the only difficulty encountered was the circular

strips of molding over the windows and louvres and the keystones. We made the circular molding by first making a straight section to required contour and then cutting this straight section into short lengths with each cut at such an angle that when lapped the circular piece resulted. This construction of course resulted in joints, but we believe these joints better the appearance rather than detract from appearance.

"The base sections below the windows and the base sections of the true spire above the windows were fabricated on the job. The window facings and the sills were made in the shop and assembled on the job. The photograph shows a double molding above the windows. We made the molding and the keystone of the window trim as one piece in the shop ready for erection.

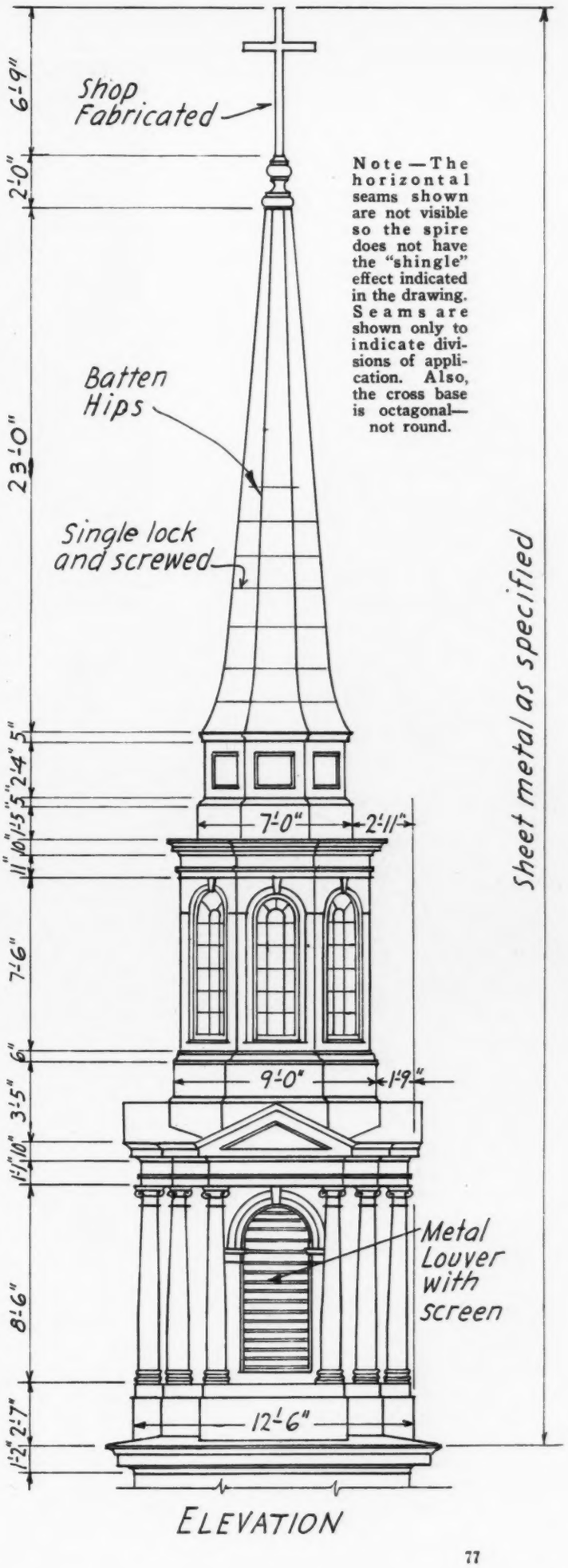
Construction of Spire

"On the spire proper the hips are batten type. The horizontal seams are single locked, but fastened through the locked joints at intervals with stainless steel screws to wood strips which had previously been bolted to the structural steel. As weather protection these screws were soldered over to prevent leaks.

"The base of the cross is octagonal, made from molding, mitred and reinforced. The base was made in the shop. The simple cross was fastened permanently to the base before erection. A pipe through the cross enters the structural steel frame for support. Through this pipe we placed a small Neon light bulb as a warning beacon for planes. The bulb can be renewed by drawing it down through the pipe."

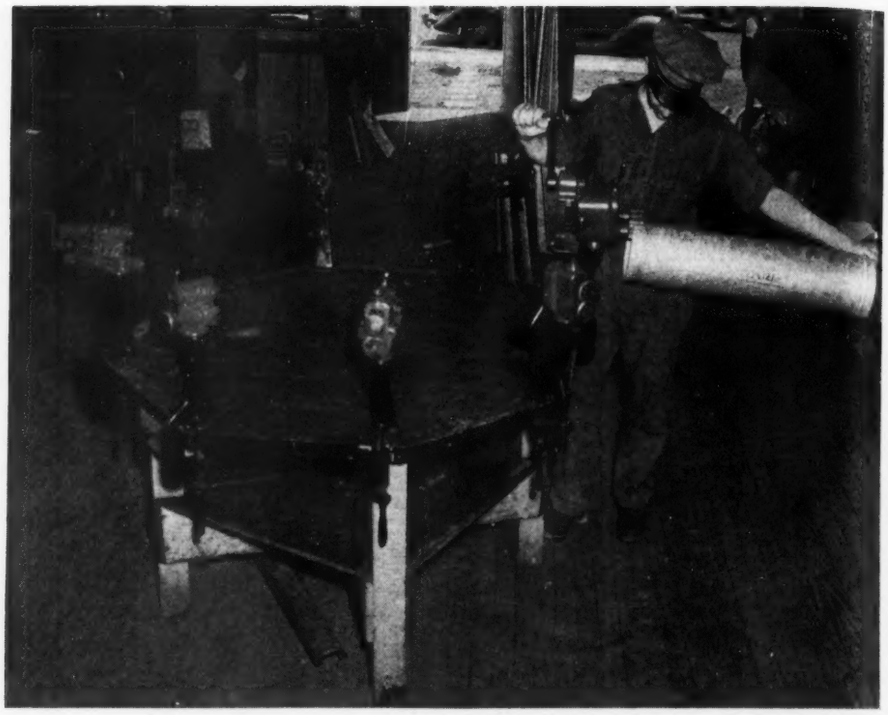
Valentine Makes Trailers

The Valentine Machine Company was established in 1900 by I. M. Valentine, father of R. E. Valentine, as a general machine repair and machine shop. R. E. Valentine took over in 1926. The principal business of the firm is custom manufacturing from customers' plans and specifications. The chief activity of the firm, for its own accounts, is house and commercial trailers of from 1,000 pounds to 30 tons capacity. Building bodies carried the firm into ornamental sheet metal work and for several architects the firm has built stair railings, balustrades, etc. Two recent such contracts involved a hollow tube stair rail for a moving picture house and an oval rail of wrought iron with vine leaf ornamentation. The firm operates in southeast Alabama, West Florida and southwest Georgia. At the beginning of this year, a brother, H. E. Valentine, joined the firm as a designing engineer. From two to ten sheet metal mechanics are employed, depending on volume.

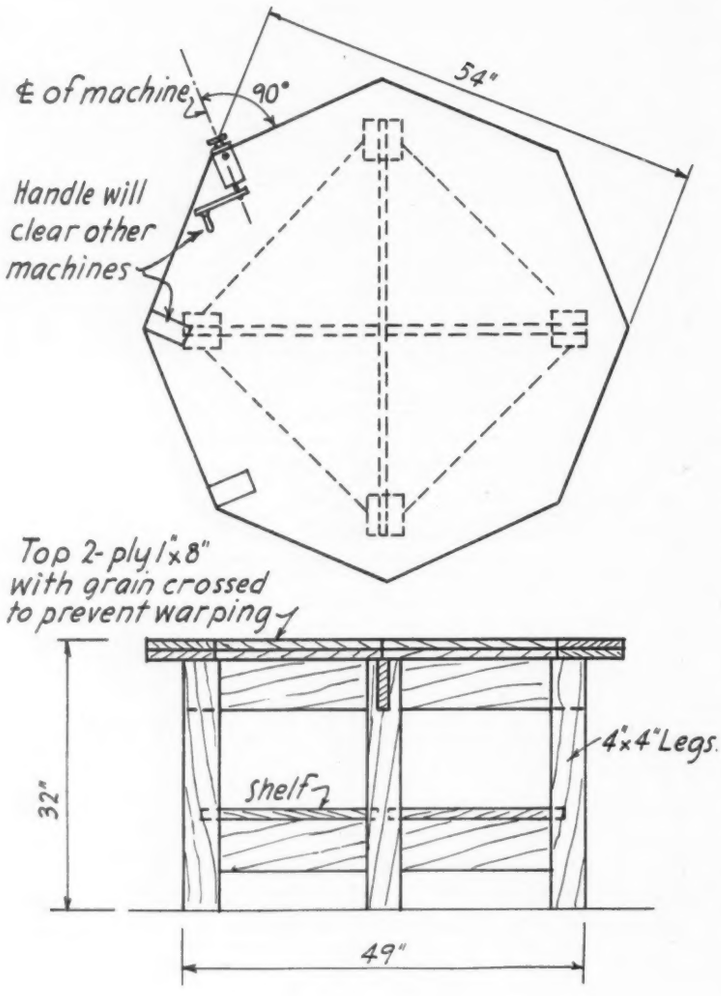


ELEVATION

The sketch below shows the construction of this eight-sided, hand-machine bench. The photograph shows that the eight sides do keep pieces in the machine from interfering with other operations. The bench could be mounted on heavy casters for portability.



By Geo. H. Watson



8-Sided Bench Permits Free Use of 8 Machines

THE octagonal shaped work bench shown in the picture and sketch is a very handy thing to have around a sheet metal shop, according to the experience of the Birmingham Tin Shop. Various machines such as crimpers, swagers, elbowers, thick edgers, thin edgers, burrowers and wiring machines may be mounted on it much more satisfactorily than on a straight type table or work bench, according to Ralph Stanfield, Jr., who, with his father, operates the shop.

Mr. Stanfield says the beauty of the many-sided bench is that it gives a better angle for the operator, who, with a straight bench, finds it difficult sometimes to operate the machine, hold the length of pipe on which he is working and at the same time find room out of the way in which to stand. All this is simplified with the octagonal bench, which also affords more sides on which to mount the various machines. It also has a lower shelf in which seldom used machines may be stored.

●Ninety-nine years means very little! Ninety-nine years of highly specialized experience in the steel business means a great deal; especially when that experience has involved handling huge quantities of steel, in thousands of kinds, shapes and sizes, and serving the varied needs of a host of users in every industry.

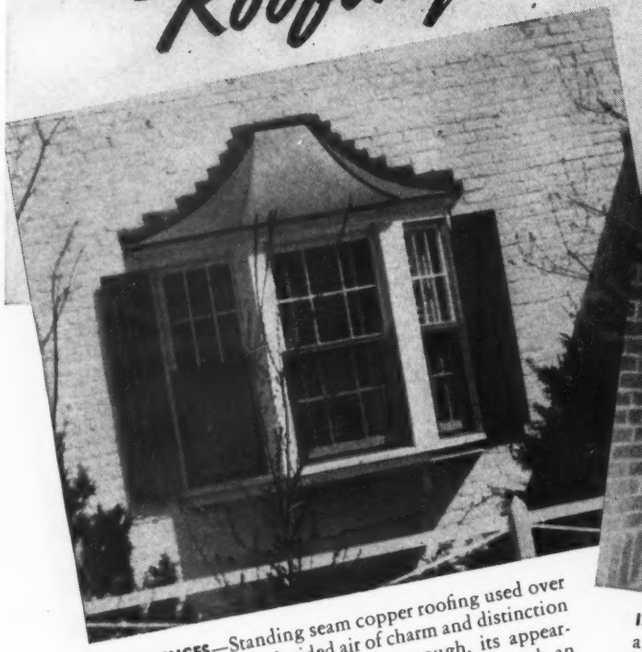
Ryerson *can* and *does* pledge that all of the skill and experience gained through 99 years of successful operation, always will vigorously be devoted to the interests of Ryerson customers. In the present period of steel shortage—as in similar periods in the past—the Ryerson organization is bending every effort to meet as nearly as possible every demand being made upon it.

Later, when American industry is back to normal production, the same organization will be working just as hard to provide steels of highest quality to meet every customer's requirement, and to provide them on the immediate basis which is synonymous with the name Ryerson.

We are glad to be 99! We are grateful for the past loyalty of our customers—but more grateful, perhaps, for their cooperation now, in our effort to serve them to the full limit of our resources. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

Every job is a better job for you if it includes

Sheet Copper Roofing!



IN RESIDENCES—Standing seam copper roofing used over bay windows lends a decided air of charm and distinction to any residence. And remarkably enough, its appearance actually improves with age and service. For such an advantage alone, copper gained widespread acceptance among sheet metal men in this usage long before the present emergency limited the available supply.

IN APARTMENTS—For protecting entrances such as the one above, copper proves itself particularly practical. Its extreme durability defies time and age. It is both water-tight and rustless. And more than that, its light weight makes costly supporting structure unnecessary.

IN STORES—How copper roofing enhances the eye-appeal of this storefront is readily apparent. Such use is doubly logical: Durability means low upkeep and lasting good appearance. Workability means economical installation. It will pay you to keep these and the many other advantages of copper roofing firmly in mind, the present copper priorities notwithstanding. For when this emergency has passed, Anaconda Copper will assume to the sheet metal trade an even greater usefulness than ever before. 4171

ANACONDA
from mine to consumer

Anaconda Copper

THE AMERICAN BRASS COMPANY, General Offices: Waterbury, Connecticut

Subsidiary of Anaconda Copper Mining Company

In Canada: Anaconda American Brass Company, Ltd., New Toronto, Ont.

You Can Be Liable For Injuries To Third Persons (*Not Parties to Your Contract*)

By Leslie Childs

GENERALLY speaking, a heating contractor will not be liable to third persons—that is persons who are not parties to the contract—for defective work. But, there is an exception to this rule stating that where work, as completed, is imminently dangerous, the contractor may be liable to anyone suffering injury therefrom.

Obviously, here is a rule that should never be lost sight of by heating contractors when final inspections are being made. And as an example of its application, and the reasoning upon which it is based, the following case will serve.

Defective Installation Causes Fire

Here the facts, briefly stated, were. The plaintiff leased a building to a tenant. The latter contracted with the defendant, a furnace company, for the installation of a furnace. The plaintiff, or owner, was not a party to this contract.

Sometime thereafter the building was destroyed by fire, and the plaintiff sued the defendant for damages on the ground that the fire resulted from the negligence of the defendant in placing the furnace too close to certain wood work. The defendant denied all liability on the grounds, among other things, that the plaintiff was not a party to the contract; and that since the work had been accepted by the tenant before the fire, that relieved the defendant from liability to the plaintiff. Further, defendant denied that the fire was caused by defective installation.

The case went to a jury, and the latter returned a verdict for the plaintiff for $5,000. From judgment on this, the defendant appealed, and the higher court in passing upon the defendant's contentions, and in affirming the judgment, reasoned in part as follows:

What the Court Decided

"While it is true that the contract for the installation of the furnace was between [the tenant] and [the defendant] and that [the plaintiff] was not a party thereto and had no contractual relations with [defendant], that the contract was completed and the work accepted by [the tenant] before the damage occurred, nevertheless, it appears that [defendant] was by contract required to, and did, install an instrumentality, the use of which, in the ordinary and usual manner as installed, was imminently dangerous. * * *

[Defendant] "owed a duty, not only to [the tenant], but to [plaintiff], as owner of the property, to use care commensurate with the danger to which the agency exposed the person or property of both [the tenant and plaintiff]. There is some evidence tending to show that the furnace was negligently i n s t a l l e d by [defendant's] agents * * *. The acts and knowledge of [defendant's] agents must be imputed to the corporation. [defendant] * * * Judgment affirmed." (14 N. E. 2nd 339.)

So much for that case. Let us examine another of this kind that arose under the following facts. Here the defendant, a furnace company, contracted with the husband of the plaintiff to install a furnace in their home. In the course of the work, the defendant's employees cut a hole in the kitchen floor for a cold air shaft. The hole was covered by a grating which was supported by lath cleats held in place by roofing nails.

The work was apparently properly done; it was accepted by plaintiff's husband. Sometime thereafter, however, plaintiff while going about her household duties stepped upon the grating, the cleats gave way, one of her legs went through the air shaft and resulted in her being severely injured. Plaintiff sued the defendant for damages

The defendant disclaimed liability on the ground that plaintiff was not a party to the contract, contending that it was not liable for her injury since the work had been accepted by the husband. In denying this contention, and in affirming a judgment for $4,000 against the defendant, the higher court had this to say:

The Reasoning of the Court

"The grating was installed for use as a part of the floor of the kitchen and was manifestly intended for the use of any of the inmates of the household * * *. The grating was defective, and the defect was of such a character that it was obvious to the one installing it that using the grating as a part of the floor would be likely to result in injury to those so using it. * * *

"This cold air grating, * * * was to be used

(*Continued on pafic* 114)

Association Activities

Wisconsin

The Sheet Metal Contractors Association of Wisconsin held their Board of Directors and district meetings at the R. J. Suettinger plant at Two Rivers on August 16. The board meeting was called to order by President T. P. Brenner in the presence of Directors Stefanik, Krueger, Biersach, Past President R. G. Suettinger and Past Director W. J. Hielscher at 3 p. m. Treasurer Marth was unable to attend. Adjournment at 3:45 p. m.

President T. P. Brenner called the district meeting to order. Director Krueger submitted a report on the prefabricated material investigation and read correspondence received, explained the attitude of the trade publications in reference to this matter which was satisfactorily received.

W. J. Hielscher brought forth a discussion on the trade methods as to materials, with quotations made to the trade. It was suggested that the secretary contact them and request some legitimate trade understanding with sheet metal contractors when they are interested in or on projects where the material is required.

Goodwin extended an invitation for the Milwaukee local to have all Wisconsin State members attend the open October meeting when M. Walton will enlighten us on sheet copper installations. The October meeting will be a dinner meeting.

The chair announced his appointment of a committee on apprenticeship. His selections are:

Frank Kramer, Chairman, of Milwaukee
Oscar Hoffmann, of Milwaukee
Paul Krueger, of Madison
W. J. Hielscher, of Racine

The chair suggested that this important committee immediately become active and report from time to time, but that their final report will have to be submitted at the February convention. The secretary will advise these members as to their committee responsibility.

The Sheet Metal Contractors Association of Wisconsin, Inc., mailed to each member on August 20 a copy of a letter from The Wisconsin Council of Defense—Geoffrey Willoughby, Executive Secretary, located at 110 East Wisconsin Avenue, Milwaukee—with a copy of the following questionnaire:

1—Is your plant threatened with unemployment because of inability to secure materials?————.
2—If so, how many employees are likely to lose their jobs?————
3—In what materials are you facing a shortage?————
4—How much, and at what rate do you need these materials?————
5—Is your plant now producing defense products?————
6—What percentage of your present production is defense products?————
7—If your answer to (5) is "none" have you tried to get defense contracts or subcontracts, and why have you failed?————
8—What kinds of products is your plant equipped to produce?————

The letter states that the Defense Industries Board is concerned over the threatened unemployment problem due to the inability of the industries to get raw materials, caused by the operations of the priorities system. Members are requested to help by answering the above questions and mailing to Defense Industries Board, 110 East Wisconsin Avenue, Milwaukee.

The September 8 meeting will open the fall season work for the association. A good program has been provided and a book will be awarded.

Paul L. Biersach, Secretary.

Chicago

The July meeting of the Furnace-Air Conditioning Sheet Metal Institute was held July 24th at Rhineland Hall.

The main topic of discussion was a letter from the Sheet Metal Contractors Association of Wisconsin, Inc., regarding the work done by coal dealers in selling stokers, controls, and furnace cleaning jobs. Their engineers are usually no more than salesmen. This subject will be discussed further at our August 21st meeting.

The committee reporting on our picnic, which was held July 13th at Long Lake Park, Long Lake, Illinois, stated that the affair will turn out financially successful.

During the months of July, August and September we hold only one meeting per month, on the third Thursday evening of the month.

Marvin Lawrentz, Recording Secretary.

◆

Chicago

The final game and banquet of the Warm Air Golf Association was held at Timber Trails on September 4, 1941. Prizes were awarded at the banquet.

Harry Himelblau of Himelblau, Byfield & Company was awarded the Warm Air Cup for 1941.

Officers were elected for the year of 1942 as follows:

President—Laurie Walquist,
Chicago Furnace Supply Co.
Vice-Pres.—Grant V. Wilson,
Grant Wilson, Inc.
Treasurer—J. Harry Ebbert,
The Armstrong Co.
Secretary—Melvin Jackson,
Grant Wilson, Inc.

◆

Florida

The Roofing and Sheet Metal Contractors Association of Florida officers will soon get together to begin plans for the annual convention, and members are asked for ideas—subjects to be discussed, as well as speaker.

The insurance rates for roofing and sheet metal classifications as given at the rate hearing on May 12th at Tallahassee were changed slightly by the action of the State Legislature in broadening the Workmen's Compensation Law. The corrected manual rates, as finally announced, are $6.19 for roofing and $2.24 for sheet metal work.

The August 15 issue of "The Florida Roofer" discusses the positive attitude in business . . . the quality of work should be such that the dealer can have no doubts and can impress his customers with the sincerity of talk which comes from positive knowledge.

There is a list of contractors who have paid their 1941 dues and others are requested to send their check for $5.00.

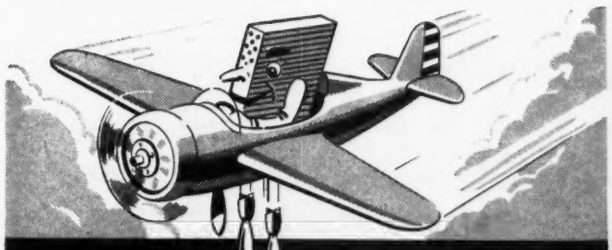
L. A. Burgess, Secretary-Treasurer.

◆

USA Needs Industrial Specialists

The Government continues its search for specialists in all branches of industry and business. The National Defense Program needs men with experience in one or more of the following fields: iron and steel; non-ferrous metals; machine tools; ordnance; aircraft, marine and automotive equipment; railroad repair shops; radio and other electrical equipment, supplies and apparatus; textiles; forest products; paper; printing and publishing; chemicals and allied products; plastics; petroleum and coal products; rubber products; stone, clay and glass products; leather and its manufactures; food and kindred products.

Salaries range from $2,600 to $5,600.



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PERMANENT AIR FILTER PANELS

Do their Stuff in the "WAR ON WASTE"

● AIR-MAZE Permanent, Cleanable Air Filter Panels offer an important contribution to the commendable "War On Waste" campaign. In the first place they bomb to bits the expensive waste of "throwaway" filters. AIR-MAZE panels need no replacements as with ordinary care they should outlive the air conditioning system in which they are used.

AIR-MAZE Filter Panels can be cleaned again and again during their long life. After each simple servicing they are "good as new" and ready for further trouble-free performance.

They "*save for defense*" too, because of their greater, non-clogging efficiency which promotes economy of fuel, reduces damage from dust, lint and grit, and eliminates unnecessary "drag" on motor and blower.

All metal AIR-MAZE panels are approved by the Underwriters Laboratories as fire resistant — another possible saving against costly damage.

THROWING AWAY FILTER PANELS IS THROWING AWAY MONEY

Write for complete information on how AIR-MAZE panels will solve your air filtration problems.

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DEPENDABLE AIR FILTERS FOR EVERY APPLICATION

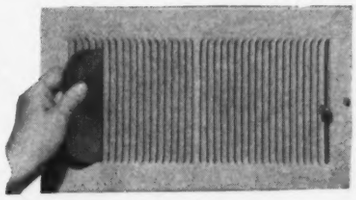
STANDARD

REGISTERS, GRILLES and PERFORATED METALS

BEND-EZY REGISTERS AND GRILLES

ADJUSTABLE FOUR WAY DIRECTION

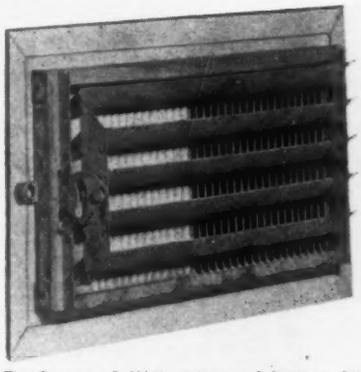
The "BEND-EZY" is stamped from sheet metal, and consists of a group or groups of bendable bars which are set at an angle of 30 degrees at the factory and the bars may be set at any desired angle in the field.



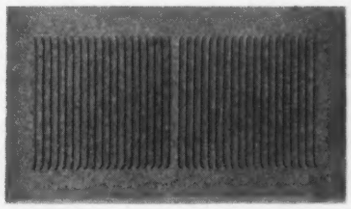
(Left) Design No. 31 V-HMS

(Below) Rear view No. 31 V-HMS

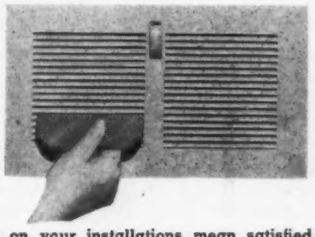
Design No. 31 V-HMS (Sidewall Multiple Valve Register) face consisting of two groups of vertical bars one half set to the right and one half to the left, with horizontal "Thin Man Shutters" adjustable to direct the air flow from either straight outward or up or down and to complete shut-off. The shutter is shallow, depth closed ½" at top and bottom, 1¾" at side of handle.



Depth opened 1½" at top and bottom, 2" at side of handle.



Design No. 30 V Grille (Sidewall Grille) consisting of two groups of vertical bars, one half set to the right and one half to the left. Pleasing modern design and substantial construction make it the grille for your installations.



Design No. 41 H Register (Sidewall Single Damper Register) face consisting of horizontal bendable bars set for 30° downward deflection and may be set to direct the air flow to any desired angle upward or downward or straight flow. Sponge rubber attached to Sidewall Register Rims.

Modern, attractive grilles on your installations mean satisfied customers and consequent high recommendations. Make sure of profitable repeat business by installing Standard Registers and Grilles on new or replacement jobs.

SEND TODAY FOR CATALOG

STANDARD STAMPING & PERFORATING CO.

3137 W. 49th Pl. Chicago, Ill.

New Products

For your convenience a number has been assigned each item. Circle the items in which you are interested on the coupon on page 93 and mail to us.

● Indicates product not listed in 1941 Directory.
△ Indicates manufacturer not listed in 1941 Directory.

△153—Chimney Liner

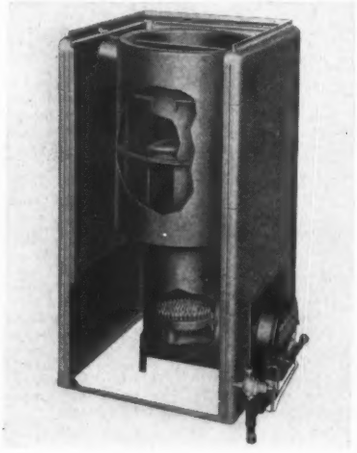
The Heremetal Company, 135 Aldrich Avenue North, Minneapolis, offers Heremetal chimney liners for corrosion and condensation troubles in chimneys. These acid-proof flue liners are available in 5, 6 and 7 in. diameters with fittings. Larger diameter pipes are furnished upon request.

◆

154—Gas-Fired Gravity

L. J. Mueller Furnace Company, 2005 N. Oklahoma Ave., Milwaukee, has introduced a new gas-fired gravity furnace, the Series "G," available in two styles—square and round.

The design of this new furnace features an all welded heavy steel drum and radiator with extra long flue travel. The radiator features a circuitous travel of the products of combustion which breaks the total volume into four parts and exposes each part



to the surface of the radiator. The products of combustion travel upward throughout their course.

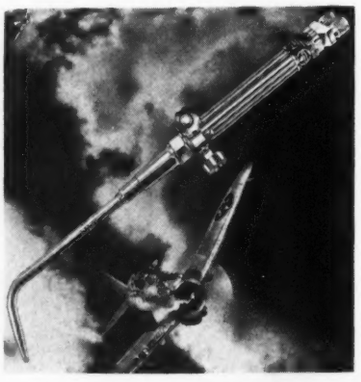
The burner and venturi are of one piece cast iron construction, with raised drilled ports. Automatic controls include pilots which operate independently of all electric currents supplied—automatically shut off all gas in the event of pilot extinction.

The unit is available in only one size—90,000 Btu per hour input and 67,500 Btu output. A.G.A. approved.

The model GR-90 has a round galvanized casing and pitched hood with inner radiation shield. The model GS-90 has a square casing with radius corners and green crinkle lacquered finish. It, too, has a pitched hood and inner radiation shield.

156—Aircraft Welding Torch

National Cylinder Gas Company, 207 West Wacker Drive, Chicago, offers the Rego welding torch for aircraft, automobile, sheet metal, tube and production welding up to ¼ inch. The torch weighs only 7 ounces.

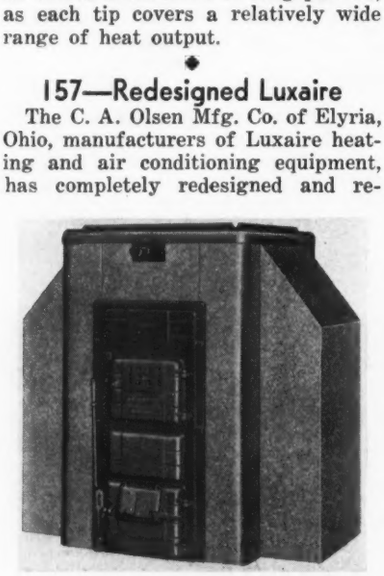


Long bend and short bend swaged tips of pure copper, with brass protectors to prevent damage to tip threads, are available in sizes 76, 72, 68, 62, 59, 55, 53 and 51 (drill size of orifice). Flame characteristics may be varied from short to long pointed, as each tip covers a relatively wide range of heat output.

◆

157—Redesigned Luxaire

The C. A. Olsen Mfg. Co. of Elyria, Ohio, manufacturers of Luxaire heating and air conditioning equipment, has completely redesigned and re-

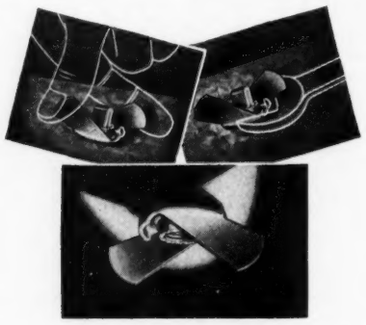


built their entire line of 600-700 AC Series coal fired gravity and air conditioning furnaces.

These units use new patterns for the streamlined fronts, new duplex grates with cast rollers, convenient sturdy shaker handle with substantial connecting rod and other features.

158—Wing Nut

M. A. Gerett Corporation, Milwaukee, announces a new style wing nut that lends itself to final tightening with a flat open end wrench.

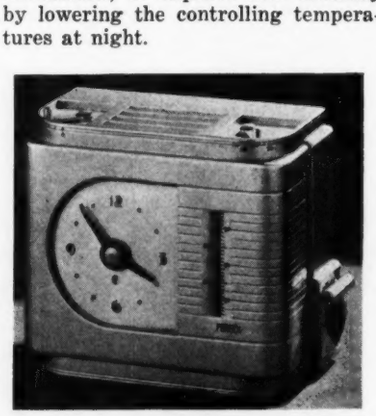


Designed for use with their E-Z-ON damper regulator it allows a positive set. Wings are wide and flat to comfortably fit the fingers and allows greater leverage. Size ⅜—24 steel stamping cut thread, cadmium plated.

◆

159—Clock Thermostat

Perfex Corporation, 500 W. Oklahoma Ave., Milwaukee, announces an automatic heating control combining an electric clock and a day-night room thermostat, to improve fuel economy by lowering the controlling temperatures at night.



The thermostat in this unit is the Twin Contact Magic Dial type.

Day and night change-over times are established by day and night dials, each graduated in hours, and an indicator on the clock face shows whether operation is on day or on night control.

The instrument has black clock hands and burnished aluminum clock dial. The control cover is finished in a flat gold.

Solved! the Problem of BLOWER SPEED CONTROL

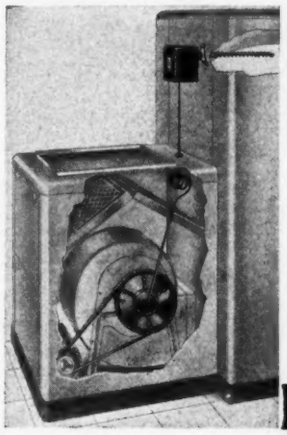
FOR YEARS the Warm Air Heating Industry grappled with the troubles and complaints caused by the lack of a correct blower speed control for Forced Air Heating installations.

Now they have found the practical, simple and complete answer to this problem—in the

MASTER BLOWERTROL
Thermostatic CONTROL

It does away with chilly blasts, air stratification with its "cold 70" and cold drafts, hot blasts and blower starting noise.

This simple, inexpensive, tested-and-proved control increases and decreases blower speed GRADUALLY in ratio to the bonnet temperature of heating unit. It assures more complete COMFORT, economy and satisfaction from any Forced Air Heating System using a centrifugal blower. It is automatic in operation, carefully constructed, — dependable! Adaptable to old or new installations, regardless of fuel used.



WRITE for BULLETIN

giving full details of construction and operation.

WHITE MANUFACTURING CO.
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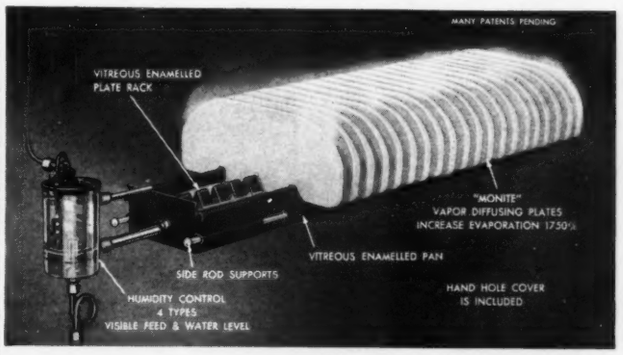
MONMOUTH—
The Humidifier That Has What It Takes


MANY PATENTS PENDING
VITREOUS ENAMELLED PLATE RACK
"MONITE" VAPOR DIFFUSING PLATES INCREASE EVAPORATION 1750%
VITREOUS ENAMELLED PAN
SIDE ROD SUPPORTS
HUMIDITY CONTROL 4 TYPES VISIBLE FEED & WATER LEVEL
HAND HOLE COVER IS INCLUDED

1. BUY APPEAL PLUS. The lure of modern transparent plastic control units, featuring visible water level and feed rate, appeals instantly to house holders and makes selling much easier at better price and profit.

2. BEST ENGINEERED. The modern, compact and refined design, is apparent at first sight. This is a powerful aid to selling.

3. MORE POWERFUL. The genuine die-molded Monite vaporizing plates give *unequalled* humidifying capacity per plate, per inch of pan length and per dollar.

4. LARGEST RANGE OF SIZES, and types to suit requirements of any furnace, house, pocketbook or meticulous purchaser.

5. ACCURATE CAPACITY RATINGS. No longer need you guess. We supply you with a capacity selector that instantly tells exactly what size is needed for adequate, satisfactory humidification.

● To sell *more* humidifiers *more easily* and at *more* profit per sale you *must have* the humidifier that "has what it takes."

Ask for our folio on "Adapting Your Business for Wartime Conditions." Contains important information which you need.

MONMOUTH PRODUCTS COMPANY
1933 East 61st St. Cleveland, Ohio

MONMOUTH
The Greatest Name in Humidification

New Products . . . . . .

For your convenience in obtaining copies of new Literature use the coupon on page 93.

160—Louvre Ventilators

Milcor Steel Company, Milwaukee, announces a complete line of louvre ventilators for carrying off summer heat and preventing winter condensation, built around three basic models—a No. 100 Series of self-casing ventilators for masonry or new frame construction; a No. 200 Series for masonry walls only; and a No. 300 Series to be used with the conventional wood casing.

Front and Back

Each ventilator is equipped with a removable fly-screen.

The No. 100 Series has a set-back metal flange around the outside of the casing. This flange is nailed direct to the sheathing of a wood framed wall. The No. 200 Series is of the box-like flangeless type, setting deep into a masonry wall. The No. 300 Series is with flange built flush around the front face for nailing to a wooden casing.

◆

●161—Asbestos Duct Board

Sall Mountain Company, 176 West Adams Street, Chicago, makers of asbestos insulating products has developed a new asbestos board for use in constructing cold air return ducts.

This new duct board is particularly helpful in conserving metal for other and more important uses. The size is 33 x 48 in. . . . for covering three joists spaced 16" centers. It is easily handled and is finished in a gray color that can be painted or plastered.

●162—Durastac Chimney

Skuttle Sales Company, 1015 Franklin St., Detroit, has developed the Durastac vitreous enamel-lined chimney—a low-cost lined chimney resistant to the deteriorating effects of acid formed by flue gases and moisture within the chimney.

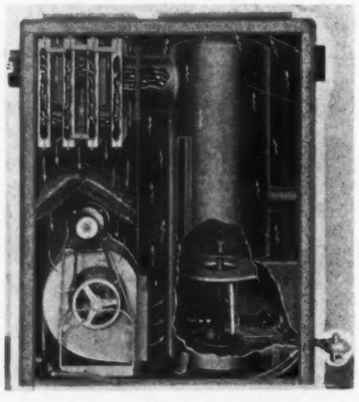
Durastac sections are made in stock sizes from 3 to 10 in. in diameter of 6, 12 and 24 in. standard lengths—a heavy-gauge welded seam Armco metal coated inside and out with high temperature acid-resisting vitreous enamel. 22½, 45 and 90 deg. elbows and open or closed tees with drain provision, also oval to round union joints, are available. Welded roof flange is leak-proof.

Insulation used is 8-layer corrugated high temperature asbestos paper 1 in. thick.

◆

163—Gas Conditioners

Lochinvar Products, a Division of Michigan Tank and Furnace Corporation, 14247 Tireman Avenue, Dearborn, Michigan, is extending their line and announces a series of gas fired furnaces, to give their dealers a wider market. All are package units with Btu register capacity of 63,000, 80,000 and 90,000, assembled and sealed on a permanent heavy steel base.



Specifications include a burner (with gas valve, pressure regulator, automatic pilot, pilot shut-off cock, main gas shut-off cock); transformer; thermostat; combustion compartment; radiator; draft diverter; green crinkle finish furniture steel outer casing; combination limit and fan switch; renewable fireproof filters; belt-driven with variable speed pulley blower (motor rubber mounted); and automatic type humidifier with valve, vapor pan, copper tubing and fittings.

The main heating drum is 16-ga. steel, 16 in. in diameter and is capped with a slightly dished head. The radiator is made of 18 ga. steel and constructed in sections. All joints are rolled and welded.

164—Welder Control Box

The Lincoln Electric Company, 12818 Coit Road, Cleveland, announces further improvement in dual continuous control for arc welding machines, in the form of a new welder box control of advanced design.

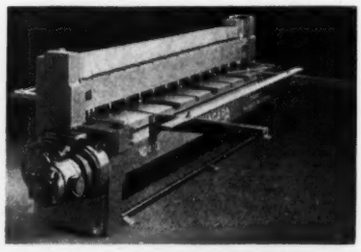
The new box—Type G—prevents accidental contact with live parts, increases accessibility, permits wiring with flexible or rigid conduit, or rubber-covered multiple-conductor cable and eliminates dangers from unintentional loosening of the lifting hook. There is a separate compartment for all a.c. circuits, including push button, and another separate one for d.c. terminals. Both a.c. and d.c. compartments have a snap catch which holds the door in closed position.

The control box is permanently grounded to the motor and generator frames through the mounting bolts.

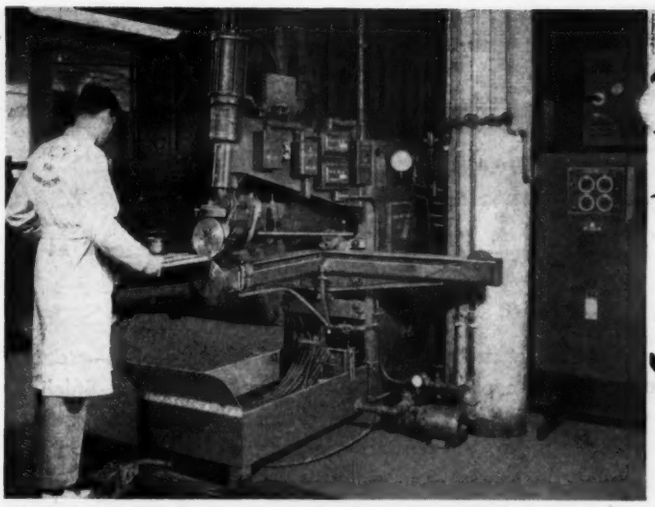
◆

165—Power Squaring Shears

Niagara Machine & Tool Works, 637 Northland Ave., Buffalo, announces a new line of shears. Standard equipment includes a direct-connected 3-phase, 60 cycle, 110 or 220-440 volt A. C. ball-bearing, splash proof motor completely wired with magnetic starter, and start and stop push button control; one pair of 4-cutting edge solid tool steel knives; adjustable stainless steel scale inlaid at each end of bed; front gage with two front brackets, side and bevel gages and a ball-bearing, self-measuring, parallel operating back gage adjustable at 1/128 in. increments.



The drive, including the flywheel, gearing, clutch, eccentrics and the connections, are enclosed.



Depend on UTILITY

For efficiently organized mass-production methods—for all equipment needed for large-volume economies—for heating equipment that is uniformly efficient, economical and dependable.

MODEL HUF
UNIT HEATER

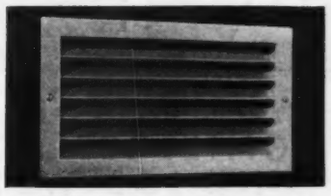
This electric seam welder exerts a pressure of 2 tons, to make continuous gas-tight welds at the rate of 3 to 18 feet per minute, on heat exchangers and other parts of Utility Heating Equipment. These products are made faster, with better appearance and complete assurance against leaks, by electric welding.

MANUFACTURERS OF FORCED-AIR BASEMENT AND CLOSET FURNACES, FLOOR AND DUAL REGISTER FURNACES, CIRCULATING HEATERS AND UNIT HEATERS

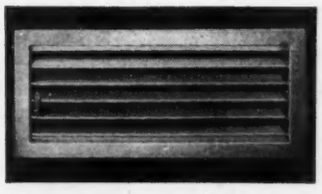
UTILITY FAN CORPORATION
4851 SO. ALAMEDA STREET • LOS ANGELES, CALIFORNIA

practical registers

FOR PROFITABLE JOBS



FHG-O-45 Venetian-type Return Grille



FH 100 Adjustable Register for Walls

● In the complete Waterloo line you're sure to find the register you want for every type of installation. The FH-100, for example, is an adjustable wall register that is hard to beat for value, efficiency, and appearance. Horizontal, multi-louvres are equipped with a disappearing lock-type operator which adjusts louvres from fully open to closed. The FHG-O-45, also shown, is an attractive Venetian-type return grille. For the best performance and the best appearance, try Waterloo Registers. They're designed to do the job. WRITE for free illustrated catalog and prices.

Waterloo
AIR DIFFUSION EQUIPMENT

WATERLOO REGISTER CO.
WATERLOO, IOWA • SEATTLE, WASH.
Representatives in principal cities

the BEAUTY of

PRE-FINISHED METAL SHEETS AND COILS

. . . is the NEW JOBS they create for you!

Alert sheet metal men are creating new jobs—greater profits for themselves—with American Bonded Pre-finished Metals. In the fields of interior decoration, displays, signs, and many more, these men are creating new jobs on the appeal of the many striking patterns, and the proven durability of the bright or satin finishes of these American Bonded Metals. And the metal is easy to work with, too! We can supply sheets up to 36" x 96", strips cut to order or long continuous coils. Where you have special problems, write and ask our metallurgists. In your regular "bread and butter" work, too, you'll like American Bonded Pre-finished Metals. Our complete line of metals is listed at left. Here's opportunity! See your jobber or write direct for literature.

A COMPLETE LINE OF PRE-FINISHED METALS

Chrome Zinc	Chrome Steel	Chrome Brass
Brass Zinc	Nickel Steel	Nickel Brass
Copper Zinc	Brass Steel	Chrome Copper
Nickel Zinc	Copper Steel	Nickel Copper

AMERICAN NICKELOID COMPANY
22 SECOND ST. PERU, ILLINOIS

AEROLUX

THE AIR CONDITIONER ENGINEERED TO DO ONE JOB WELL

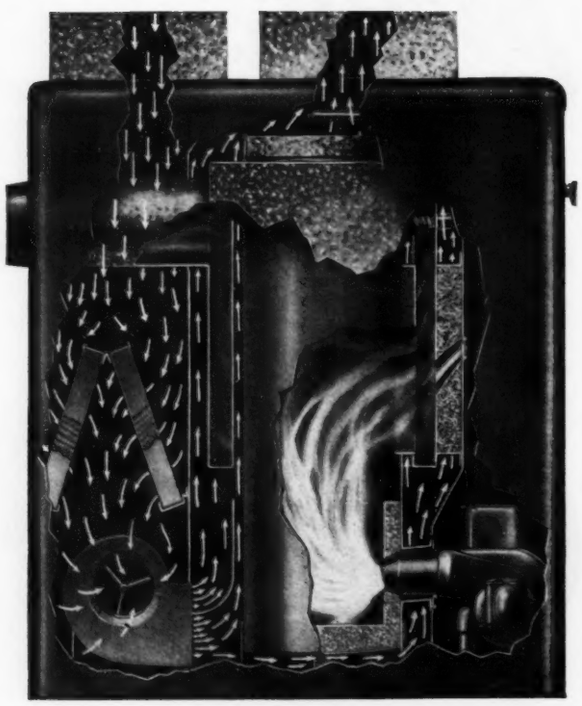
The AEROLUX is more than just another assembly of furnace-filter-fans. It was designed and engineered from the ground up to do an effective air conditioning job. Its great popularity proves how well it is making good in thousands of homes.

Air temperatures are automatically controlled by thermostat. Being direct-fired with the Johnson BH-O "Bankheat" Pressure-Type Oil Burner, the AEROLUX is equipped to give excellent results with low cost fuel oil.

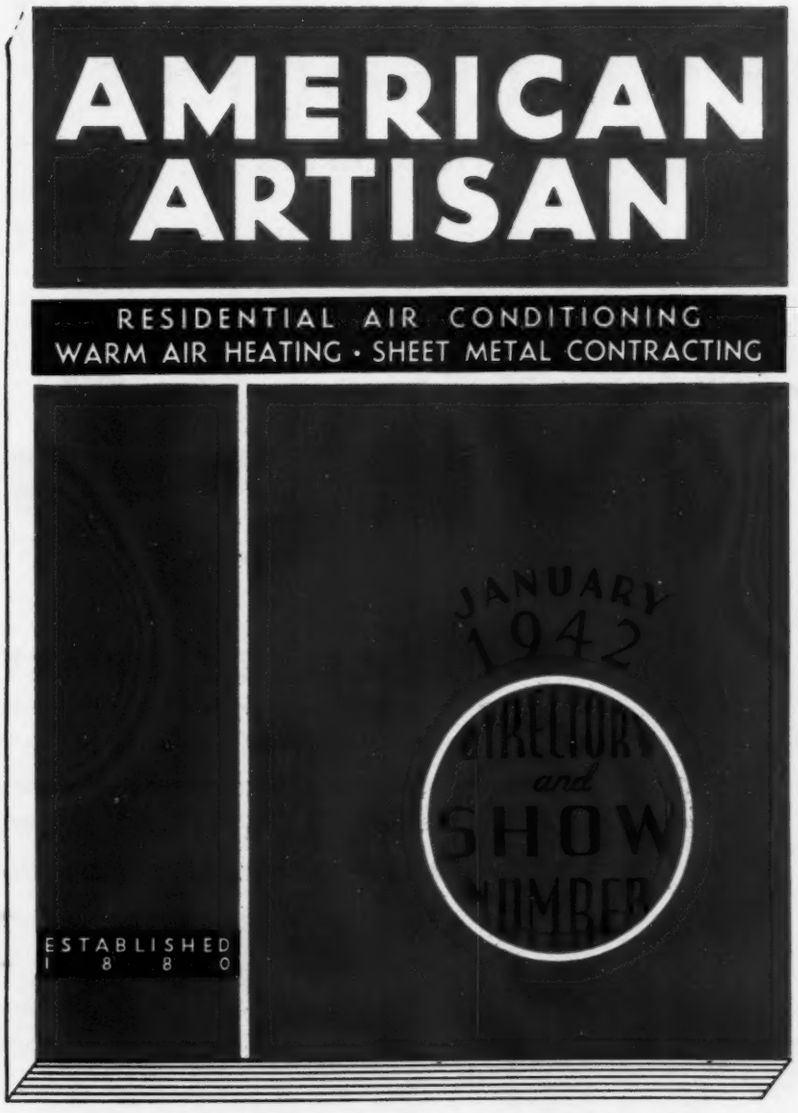
Get more particulars about this small, beautifully compact air conditioner. It is a "packaged" unit, with all working parts completely enclosed, finished in baked enamel in two attractive tones of green.

For owners who appreciate economical performance and automatic efficiency, specify AEROLUX.

Send for the AEROLUX Data Sheet for full details.



S. T. JOHNSON CO.
940 Arlington Avenue • Oakland, Calif.
401 N. Broad Street • Philadelphia, Pa.



"... better send in our reservation now for the AMERICAN ARTISAN ANNUAL DIRECTORY and SHOW NUMBER"

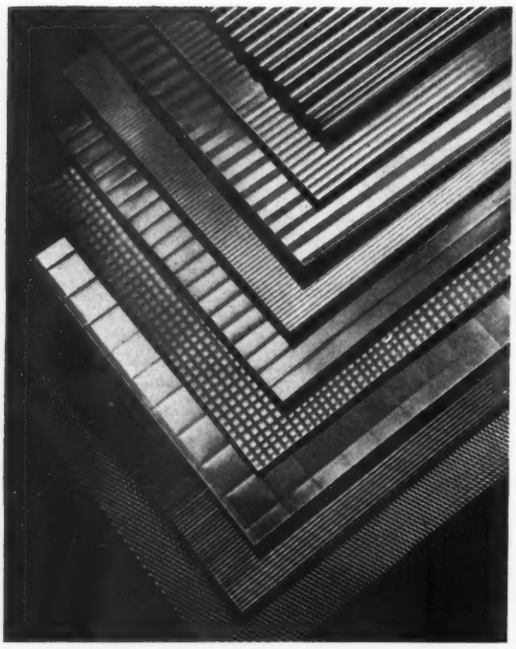
The January 1942 issue of AMERICAN ARTISAN will, as usual, contain the *original, complete* Directory of the field inaugurated eleven years ago. In addition, it will contain the Show section of the International Heating and Ventilating Exposition at Philadelphia, complete with all listings and directions of what is to be displayed at the Show and where to find it.

The Directory will serve throughout the year as a reliable guide for dealers and contractors looking for sources of supply for all types of equipment used in the field. For manufacturers, it will offer an unparalleled opportunity to reach the men who "count" in the field. Those who specify and buy various types of equipment . . . and all at *no additional cost!* Regular space rates apply!

It will pay you well to take liberal space in this issue . . . show your complete line . . . get *all* your message to *all* your prospects at the same time in the January 1942 Directory and Show Number of AMERICAN ARTISAN.

DO THE JOB RIGHT . . . USE LIBERAL SPACE!

AMERICAN ARTISAN
6 North Michigan Avenue Chicago



the BEAUTY of
PRE-FINISHED METAL SHEETS AND COILS

...is the NEW JOBS they create for you!

Alert sheet metal men are creating new jobs—greater profits for themselves—with American Bonded Pre-finished Metals. In the fields of interior decoration, displays, signs, and many more, these men are creating new jobs on the appeal of the many striking patterns, and the proven durability of the bright or satin finishes of these American Bonded Metals. And the metal is easy to work with, too! We can supply sheets up to 36" x 96", strips cut to order or long continuous coils. Where you have special problems, write and ask our metallurgists. In your regular "bread and butter" work, too, you'll like American Bonded Pre-finished Metals. Our complete line of metals is listed at left. Here's opportunity! See your jobber or write direct for literature.

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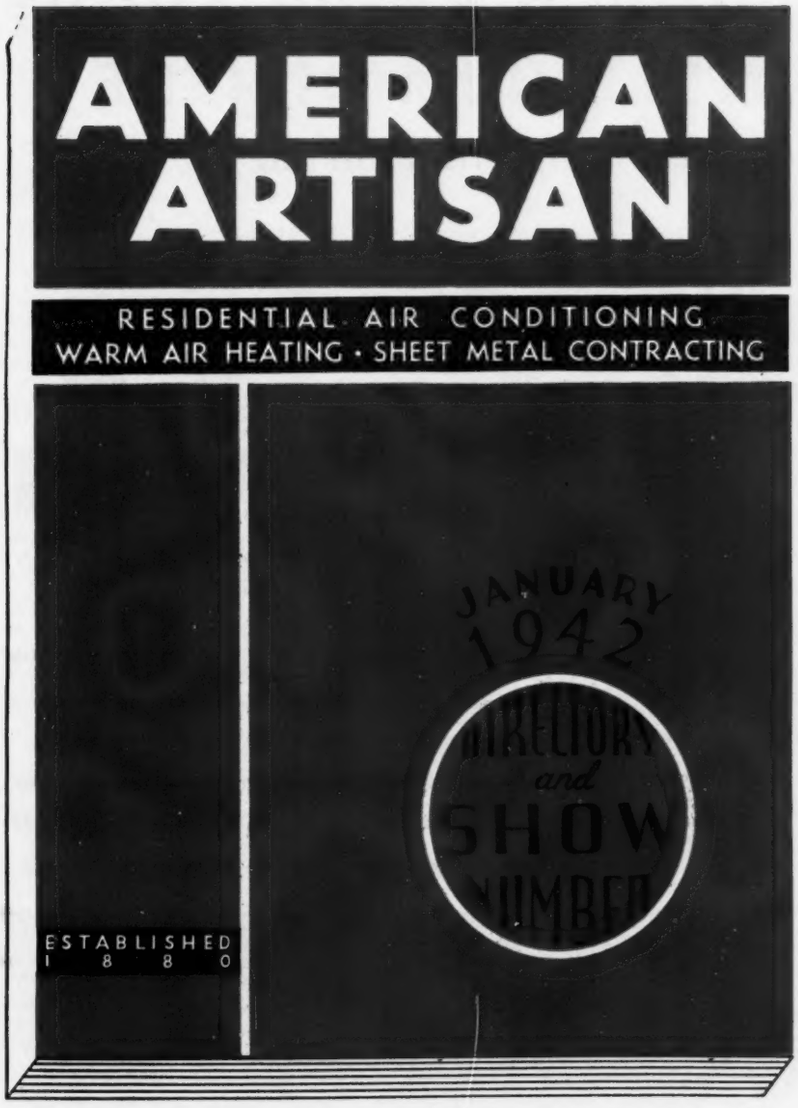

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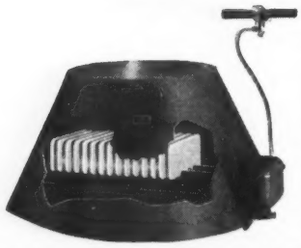
DO THE JOB RIGHT . . . USE LIBERAL SPACE!

AMERICAN ARTISAN
6 North Michigan Avenue Chicago

FACTS YOU SHOULD KNOW ABOUT THESE SKUTTLE HUMIDIFIERS

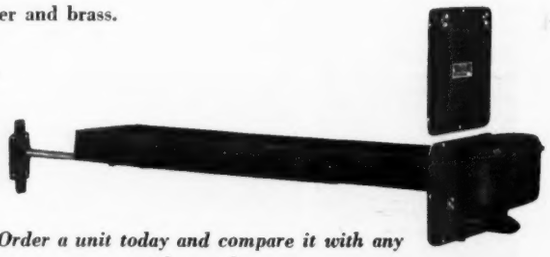


← 300 AUTOMATIC HUMIDIFIER

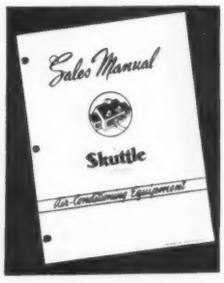
- New adjustable collar and rear support.
- All vitreous enamel evaporating pan built expressly for new VAPOGLAS.
- Vapoglas is standard equipment with the 300 unit.
- Available in four sizes 18", 20", 24" and 30".
- Tank and valve assembly pure copper and brass.

300-A AUTOMATIC HUMIDIFIER →

- Collar for use on sloping or vertical bonnets.
- Large inspection door can be mounted in convenient position.
- Evaporating pan completely inside bonnet.
- Anti-siphoning valve, at no extra cost.
- Each part selected for long life.
- Adjustable rear support prevents leakage.



Order a unit today and compare it with any other make.



FREE

Get this free book from your jobber or distributor today. It gives you all the facts about air-conditioning and humidification.

SKUTTLE SALES COMPANY

AIR CONDITIONING EQUIPMENT

1015 FRANKLIN ST., DETROIT, MICH.

TRADE STANLEY MARK

...and it Cuts as FAST as You Feed!

● Look through a magnifying glass at an edge cut with a Stanley Unishear; you'll see what we show above. Edges square and clean. Scribed line, straight or curved, followed to a hair. And no distortion of the metal cut by a Unishear.

This kind of a cutting job, done just as fast as you feed, has made the Unishear indispensable in hundreds of sheet metal shops.

"Mighty Midget", shown above, costs only $54.00 and cuts *any sheet material up to 18 ga. hot rolled steel.* Two other portable Unishears cut up to 12 ga., stationary Unishears with capacities up to 10 ga. Ask your Stanley distributor for demonstration, or write for literature. Stanley Electric Tool Division, The Stanley Works, - - 131 Elm Street, New Britain, Connecticut.

STANLEY UNISHEARS THE ELECTRICALLY DRIVEN HAND SHEARS

New Literature . . . .

For your convenience in obtaining copies of new Literature use the coupon on page 93.

201—Sheet Metal Line for Summer

Klauer Manufacturing Co., Dubuque, Iowa, is distributing their Summer, 1941, catalog—pocket size with varnished covers and metallic binding.

The entire Klauer sheet metal line is illustrated, described and priced—rain-carrying equipment, roofing specialties, corrugated sheets and siding, metal lath and corner bead, ventilators, windows, and window frames, skylights, ornamental ceilings, stock tanks, pipe, garbage receivers, etc.

◆

202—Vibro-Insulators

The B. F. Goodrich Company, Akron, Ohio, has just published a new 12-page catalog section on its Vibro-Insulators, devices of metal and rubber.

The first two pages are filled with a general discussion of the vibration insulation problem and the part that rubber is playing in its solution. Method of selecting the proper Vibro-Insulator mounting are given, together with methods of mounting, and discussions of uniformity of load distribution, rocking and horizontal motion and the care of the devices.

Actual installation pictures and engineers' drawings of each type of Vibro-Insulator are shown with pertinent information on each.

Applications of the mountings on various types of equipment are listed, together with a table of characteristics. Nine pages are devoted to listing of the fundamental data for each type of mounting, together with an engineer's drawing of each.

◆

Consumer Literature

48 Years of Leadership—The Peerless Electric Company, Warren, Ohio, offers a 6-page folder on exhaust, attic and ventilator fans. Automatic louvres, suction boxes, grilles and automatic controls are included, with prices and data. Coupon No. 203

◆

Package Units and Blowers—The Peerless Electric Company, Warren, Ohio, offers a four-page folder for dealer distribution covering Peerless belt and direct drive package units and blowers for warm air furnaces and air conditioning units with illustrations, descriptions and data. Coupon No. 204

◆

SELLING AIDS—Owens-Corning Fiberglas Corporation, Toledo, Ohio, is supporting its fall consumer advertising campaign for Fiberglas Dust-Stop Air Filters with an assortment of hard-hitting selling aids to heating contractors, jobbers, and manufacturers of air-conditioning and ventilating equipment.

Each of the consumer advertisements takes the form of a series of lively, cartoon-type drawings which, with their captions, tell the owner of a warm-air furnace equipped with a blower how he can have added comfort by replacing dirt-clogged filters with new ones that will permit a free flow of air and prevent waste of fuel.

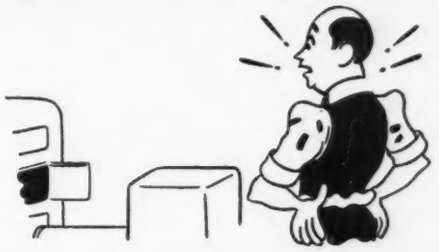
The consumer advertisements are scheduled to appear in Life, Better Homes and Gardens, American Home and the Saturday Evening Post.

The selling aids are offered and described in an attractive portfolio which is now being widely distributed. The aids include envelope stuffers, postcards to be mailed to prospects, free mats of advertisements for insertion in local newspapers, and labels to be attached to the customer's blower to tell him when filters should be installed. Short radio announcements, for use on local programs, are also offered.

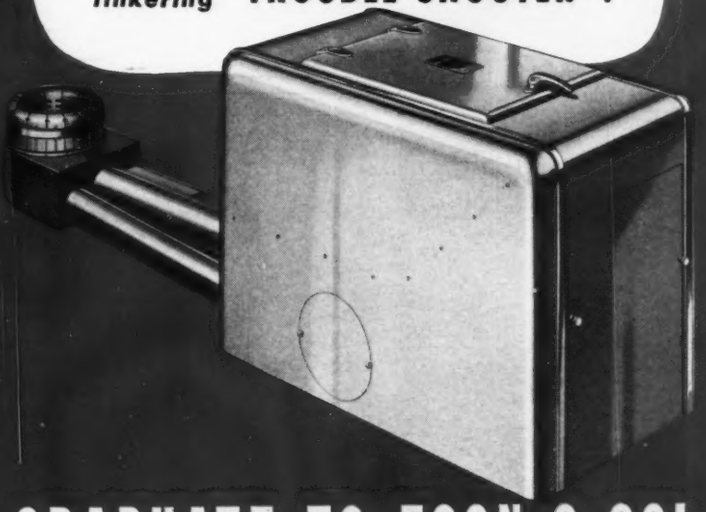
The selling aids also help the heating contractor sell his other services. Coupon No. 205

SALES "HARVEST" TIME IS HERE

will you be a smart SALESMAN...



or just a tinkering "TROUBLE-SHOOTER"?



GRADUATE TO ECON-O-COL
THE *Trouble Free* STOKER

As trouble-free as human minds and hands can make it . . . the precision-built, pioneer Econ-O-Col Stoker is ready to *free you* from time-and-money-wasting service calls . . . ready to give you *extra time* to use in making *more sales*, making *more money* . . . ready to *build prestige* and *satisfied customers* for your store. With the public definitely quality-conscious . . . with more money available for top-notch appliances . . . it will pay you to talk with us *NOW*—and *graduate to Econ-O-Col!* May we show you how other dealers are cashing-in?

BACKED BY A COMPLETE PROGRAM OF HARD-HITTING *Selling Helps*

WRITE TODAY FOR PRICES AND DETAILS ON MONEY-MAKING 1941 ECON-O-COL DEALER FRANCHISE

ECON-O-COL Automatic COAL BURNER
THE SHIELD OF QUALITY

ECON-O-COL

The "Stronghearted" Stoker

MANUFACTURED BY COTTA TRANSMISSION CORPORATION, ROCKFORD, ILLINOIS

For Prices and Deliveries on

Blower-Filter *Units*

So far USAirCo has been able to meet its defense contract requirements without impairing service to the trade on blower-filter units.

An enlarged plant, plus the extra blower capacity released by the usual seasonal curtailment of cooling equipment production, is making this possible.

Now is the time to take advantage of the *present favorable delivery and price situation.* Growing defense needs may change the picture overnight.

Immediate action is advisable, if you hope to fortify your own heating, cooling and ventilating needs.

Write USAirCo *today!*

UNITED STATES AIR CONDITIONING CORP.

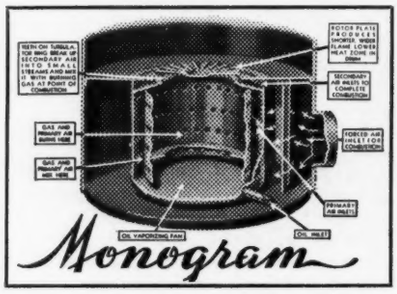
Minneapolis, Minnesota
Northwestern Terminal

USAirCo., N. W. Terminal, Minneapolis
Send data on items checked to:

Blower-Filter Units	☐	
Ventilating Blowers	☐	.....
Exhaust Blowers	☐	
Cool'g & Heat'g Coils	☐	
Deflecto Grilles	☐	.....
Warm Air Registers	☐	
Room Humidifiers	☐	
Cooling Equipment	☐	Jobber's Name .....

USAIRCO Air Conditioning Equipment — YOUR BEST AIR DEFENSE

Conserve Oil with MONOGRAM



THE best interests of the country are more important than usual in the present times and every effort to be of assistance in the national defense program is the duty of all.

We, in the oil burner industry, are faced with the task of conserving oil—making every last drop provide the maximum efficiency in an effort to prevent waste.

You can be sure your efforts in this direction will meet with success when you specify and install Monogram Patented Turbulent Flame "Vaporizing" Burners on new or replacement jobs.

This revolutionary burner vaporizes the oil quicker and by proper mixture of both primary and secondary air produces a clean, quiet gas flame made from oil. MONOGRAM features this burner in all of its oil heating units (space heaters and automatic warm air furnaces) and has obtained the highest known operating efficiency. Additional facts about trouble-free oil heating service that can be operated at a lower cost and with important economy are yours for the asking. Send for it.

Write NOW *for further information*

★ ★ ★

THE QUINCY STOVE MFG. CO.
QUINCY • ILLINOIS

New Literature . . . .

For your convenience in obtaining copies of new Literature use the coupon on this page.

206—Peerless Electric Dealer Price List

The Peerless Electric Company, Warren, Ohio—Fan and Blower Division—has available a dealer net price list for Peerless package units and blower assemblies, plus controls.

207—Automatic Heating Accessories

Robert Barclay, Inc., 122 North Peoria Street, Chicago, wholesale distributors of automatic heating accessories, is distributing Catalog No. 115 for fall, 1941. The catalog contains 64 pages with cover and is thoroughly indexed.

208—Fans and Ventilating Equipment

Propellair, Inc., Springfield, Ohio, is distributing Catalog No. 10 with 72 pages of descriptive and technical information on Propellair fans and the subject of ventilation in general.

An engineering section is intended to assist plant engineers in selecting the proper size and type equipment.

209—Skylight and Roof Tables

Skylight and Roof Tables, by Collier Smith—Third Edition, revised and enlarged by J. H. Teschmacher—is offered by Scientific Book Corporation, 15 East 26th Street, New York City. This is a time-saving reference book giving the true lengths of all bars for skylights and roof rafters of standard pitches and other useful data. Contents cover layout, cutting material, discussion of pitch, bar changes, etc., with tables and demonstration of their use. Pocket size, price $1.50, postpaid.

210—Blower Catalog and Data Book

Ilg Electric Ventilating Company of 2850 N. Crawford Avenue, Chicago, has just published a new 64-page combined catalog and engineering data book on Universal blowers.

The book features Ilg's four lines of direct-connected and belted blowers, plus two lines of volume blowers, the construction of the Ilg-built motor, advantages of the Ilg patented variable air controller and floated drive, and the complete group of marine blowers. Uses of each type, characteristic curves, dimensions and performance data are included. Fan performance laws, an altitude table, air friction and duct graphs, sample specifications and a chart of universal discharge arrangements have been reproduced.

Distribution of the manual is restricted to architects, engineers and contractors.

FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.
Chicago, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature." (Circle numbers in which you are interested):

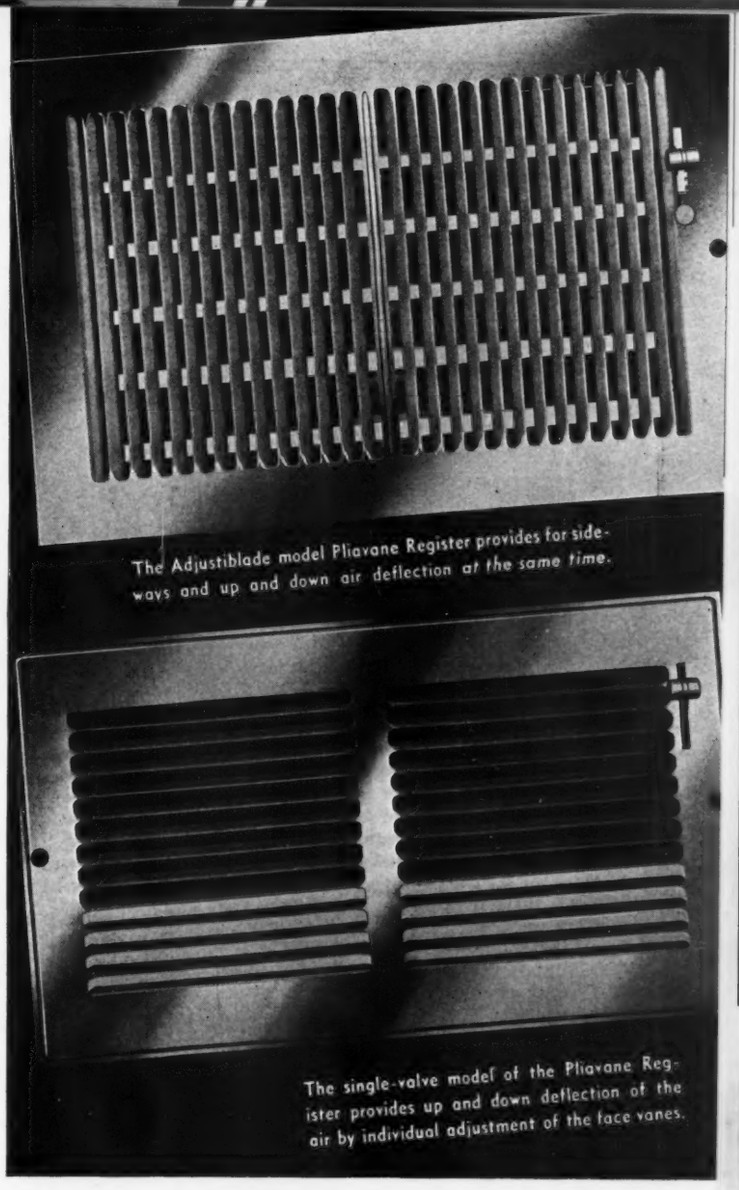
153	154	155	156	157	158	159
160	161	162	163	164	165	
201	202	203	204	205	206	207
208	209	210				

Name .....

Company .....

Address .....

Are you Manufacturer——Jobber——Dealer——



The Adjustiblade model Pliavane Register provides for sideways and up and down air deflection at the same time.

The single-valve model of the Pliavane Register provides up and down deflection of the air by individual adjustment of the face vanes.

Your First Choice Can Still Be PLIAVANE REGISTERS

DESPITE the unprecedented demands of defense requirements, it is good to know that you may still have the register which would be your first choice under any conditions — the Pliavane! Tuttle & Bailey are making every effort to maintain adequate stocks and to give their customers prompt service even under present trying conditions.

You may choose the flexible Adjustiblade construction, which provides instantaneous adjustment of the air stream sideways and up and down at the same time. Or you may select the Pliavane in the conventional single valve construction which provides up and down deflection.

T & B TUTTLE & BAILEY, Inc.
NEW BRITAIN, CONN
NEW YORK CHICAGO PHILADELPHIA

Skilled manpower for today's battle of production is being trained throughout America in vocational schools equipped with Niagara machines and tools for sheet metal working. This typical classroom shows how students are getting practical training on the identical machines which they will use in industry. Niagara Machine & Tool Works, Buffalo, N. Y. Branches: Leader Building, Cleveland; General Motors Bldg., Detroit; 50 Church St., New York.

You don't have to be a MAGICIAN!

To Transform an old Cracked, Worn-Out Furnace into a Modern, Refractory-Lined Heating Plant. Fireline Will Do It For You.

SAVES FUEL! MORE HEAT! LESS ASH!

Fireline, installed around the firepot, provides a modern refractory lining. Gives more heat from less fuel. Radiates the heat across entire fuel bed. Brings about complete combustion of all the fuel; no unburned coal in the ashes because of complete combustion. And Fireline protects firepot castings, old or new.

Your customer saves money two ways—no expensive castings are necessary and the Fireline lining saves fuel. You make more money because the Fireline job is easy to sell and is installed without taking down the furnace.

If you're really interested in making extra money this summer and fall, send for the Furnace Profits Plan and learn the details about how to build up your furnace business and save money for your customers.

FIREBRICK IN PUTTY FORM

BE SURE WITH IRONSET FURNACE CEMENT Be sure that every joint is perfectly sealed. Ironset will not crack, bloat, shrink or blister even under highest temperatures. Sold by leading jobbers in 5, 10, 50 and 100-pound packages.

FIRELINE STOVE & FURNACE LINING CO.
1816 Kingsbury St. Chicago, Illinois

Here They Are—Come and Get 'em!

Anticipating a possible shortage of materials and finished heating equipment, we have built up an inventory of Warm Air Furnaces. If you need furnaces now or will need them later, get in touch with us at once.

A COMPLETE LINE

The Hart & Crouse Corporation offers a full line of modern Warm Air Furnaces and Air Conditioning Units, including the 900 Series which is a truly competitive line. Made by one of the largest and oldest manufacturers of heating equipment, with a capacity to produce 25,000 furnaces a year. Modern assembly line methods assure expert workmanship at low cost of operation, and the name Royal stands for higher quality.

HART & CROUSE
CORPORATION

301 TURNER STREET UTICA, NEW YORK

Be Sure to INVESTIGATE
SAL-MO ASBESTOS DUCT BOARD
Saves Metal . . . . Saves Time

A new Sall Mountain Asbestos Product, developed specially for use in constructing cold air return ducts, conserving metal for other important uses.

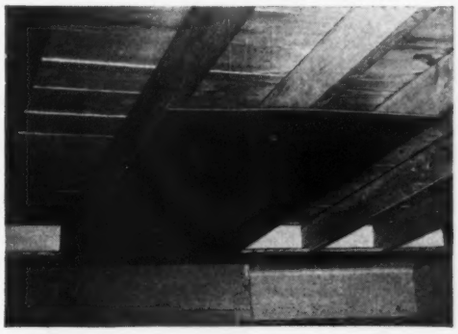
Sal-Mo DUCT BOARD is fireproof and moisture-proof, light in weight, easily applied and durable.

Made in sheets 33" x 48", 1/8" in thickness, it is just the right size to cover three joists spaced at 16" centers, making two cold air return ducts.

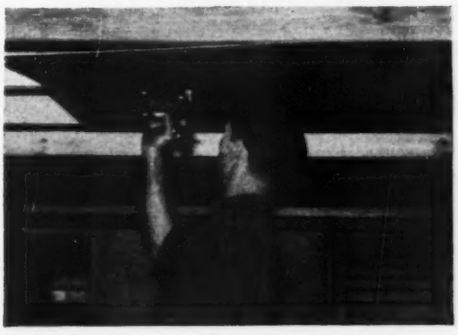
Samples and further information will be gladly sent on request.

See Your Nearest Jobber

SALL MOUNTAIN COMPANY
176 West Adams Street CHICAGO, ILLINOIS



Made in Sheets 33" x 48", which will cover three joists spaced at 16" centers. It is flexible to compensate for any irregularities in lumber.



SAL-MO DUCT BOARD is easily handled by one person with hammer and tacks . . . or excellent results are obtained with standard stapling machines.

Rod May Be Used as Punch on Heavy Furnace Pipe

Sharp Piercing Point with Four Cutting Edges

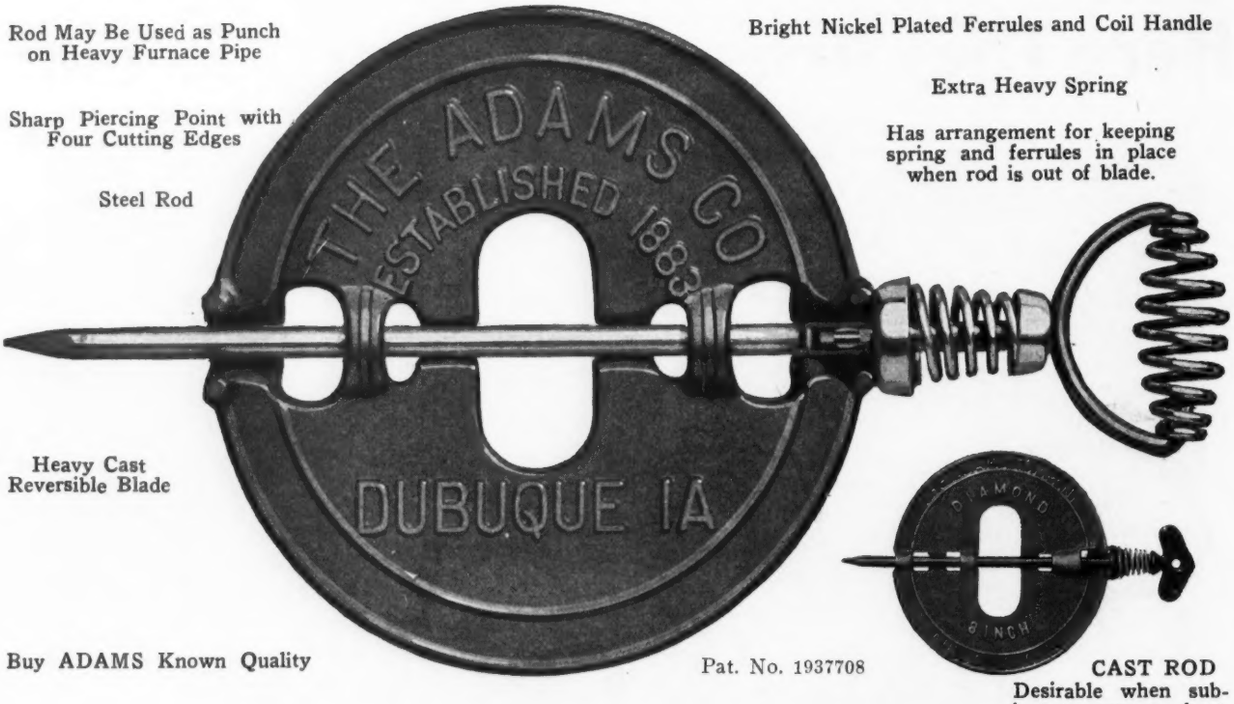
Steel Rod

Heavy Cast Reversible Blade

Bright Nickel Plated Ferrules and Coil Handle

Extra Heavy Spring

Has arrangement for keeping spring and ferrules in place when rod is out of blade.



Buy ADAMS Known Quality

Pat. No. 1937708

CAST ROD
Desirable when subject to extreme heat.

DIAMOND SMOKE PIPE DAMPER

Manufactured by **THE ADAMS COMPANY** Dubuque, Iowa, U. S. A.
ESTABLISHED 1883

Here's Your Fall Profit Insurance!

BASE FALL CHECK-UP BUSINESS On the

RESEARCH AIR FILTER

Make sure of fall profits, with this easy plan for getting money-making repair jobs!

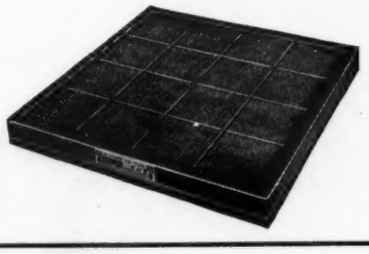
1—Phone your forced-air customers, and offer to check their filters.
2—Replace dirty filters with Re-Fil-Able Research Filters.
3—At the same time, check the heating plant and sell needed repairs.

Smart heating men have discovered that filter sales pay for the inspection calls . . . and they get EXTRA profits from the repairs they sell! Plan now to make your fall repair sales this profitable way!

Mail Coupon Today for Profit-Making Facts on

RESEARCH AIR FILTERS!

RESEARCH PRODUCTS CORP.
Madison Wisconsin



Research Products Corp.
Madison, Wisconsin
Send me full details on money-making Research Filters.

Name: .....

Address: .....

City, state: .....

AA9

With the Manufacturers . . .

Acme Electric Welder Moves

Acme Electric Welder Company, formerly located at 5619 Pacific Boulevard, Huntington Park, California, is now located at 2618 Fruitland Road, Los Angeles—with the same telephone Kimball 7284.

The company manufactures Acme "Hot Spot" Welders.

◆

Arc Welding News Contest

Hobart Brothers, Troy, Ohio, is offering cash prizes, totaling $200 or more every month, in a contest for interesting news items about arc welding applications. A first prize of $100, second of $50, third of $25, fourth of $15, and fifth of $10 are distributed every month. Additional special awards of from $1 to $10 are awarded entries deemed worthy of purchase by contest judges. No lengthy essay or technical data is required of contest entrants.

◆

Mueller Building and Remodeling

The L. J. Mueller Furnace Company, 2005 W. Oklahoma Ave., Milwaukee, has just completed an extensive building and remodeling program including spacious new general offices, as well as numerous private offices—all completely air conditioned and fluorescent lighted.

A complete new front of Bedford stone and glass blocks was added, as well as a second floor to house the engineering, drafting and heating layout departments.

There is also a new assembly building where gas-fired and oil-fired heating equipment is to be assembled, as well as the Mueller oil burner. A truck shipping dock and shipping room has also been added with capacity to handle five 10-ton trailer trucks.

◆

International Nickel Research Co-operation

Robert C. Stanley, chairman and president of The International Nickel Company of Canada, Limited, in a letter to shareholders which accompanies the financial statement for the six months ended June 30, 1941, advises that International Nickel is offering the full co-operation of their research and technical organizations to meet the difficulties in securing adequate supplies of nickel.

All production facilities are operating at full capacity.

◆

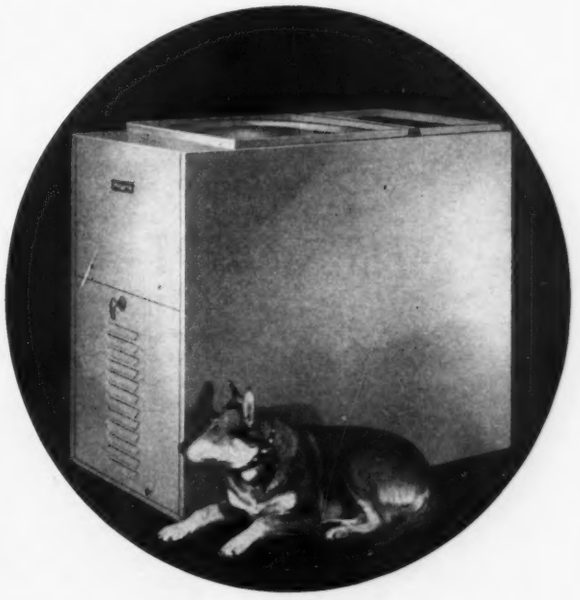
Branches and Jobbers

Minneapolis-Honeywell Regulator Company's New York Branch office has moved to 221 Fourth Avenue, New York City, with an additional 8,000 sq. ft. of floor space. Arnold Michelson is resident vice president.

◆

The Nu-Way Corporation, Rock Island, Ill., announces the following list of jobbers recently secured: Johnson Coal and Oil Co., Miami, Fla.; Johnstone Bros. Fuel Co., St. Petersburg, Fla.; Simmons Ice Company, Jacksonville, Fla.; Engineering & Equipment Co., Albany, Ga.; United Fuel & Eng. Co., Savannah, Ga.; Irving B. Schoudel, Highland Falls, N. Y.; Henry Siebert Sons, Inc., Rochester, N. Y.; Stark-Davis Co., Portland, Ore.; Plumbers Supply Co., Philadelphia, Pa.; Genner Bros., Frankford, Penna.; Adolf Narducci, Del Rio, Texas; Everett Sheet Metal Wks., Everett, Wash.; Advance Plbg. & Htg. Co., Tacoma, Wash.; Milwaukee Plbg. & Htg. Supply, Milwaukee, Wisc.

INTERNATIONAL PRESENTS



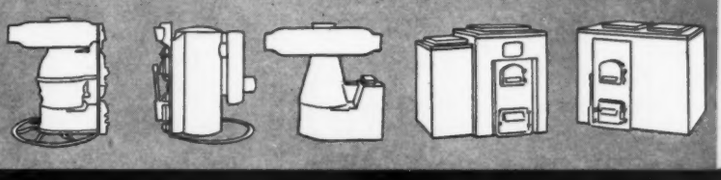
The
OIL ECONOMY
"85"

Oil Economy 85 . . . the unit designed for the new type of smaller home—26" wide—51" long — 40" high — the green enameled jacket encloses burner—Shipped complete—all controls—no extras to buy . . . really a heating and winter air conditioning **Unit** — Metal combustion chamber — Draft regulator—separate oil filter—humidifier and most important of all — Pressure type Oil Burner of modern design and proven satisfaction.

Write to Dept. A-9 for catalog of Oil Economy 85 and other International Products.

INTERNATIONAL HEATER COMPANY
UTICA, N.Y., U.S.A.

WESTERN OFFICE AND WAREHOUSE • 1933 WENTWORTH AVE., CHICAGO, ILL.
NEW ENGLAND OFFICE AND WAREHOUSE • 110 CHESTNUT ST., NASHUA, N. H.
STOCKS CARRIED WITH WHOLESALERS IN ALL PRINCIPAL CITIES



CONTROLS *by Sampsel*

FIRE PILOT CONTROL

The Sampsel Fire Pilot Control line includes five types designed to control all size stokers from the smallest domestic to the largest industrial installation. They are easy to install and require a minimum of service. Each and every control bears the seal of Underwriters' approval, and look at these features: Fused entrance switch; one, two or four cycles per hour; heavy duty type relay and transformer; fine silver contact points on both trolley arms and relay; Bakelite junction block for easy connection of all wiring; Indicator dial that indicates when the control is operating properly. All parts enclosed in steel housing to meet Underwriters' specifications. Write for Bulletin.

PROTECTOLITE Thermostat (right) flashes a red light signal when—for any reason—the stoker fails to operate properly and the stoker can be put back into operation before the heat goes down. The perfect outfire control. Shock-proof housing.

STANDARD Thermostat (above) furnished with or without wall base. Full temperature range from 50° to 90°. Attractive bakelite base allows quick, easy installation. Attractive shock-proof cream plastic cover.

DAY-NIGHT THERMOSTAT (left) contains two elements—one controlling day temperature; the other, night temperature. Automatically switches from day to night to day temperature setting at a predetermined time.

WARM AIR FURNACE CONTROL (right) a three-in-one control with wiring combinations that adapt it to low or line voltage limit control operation or line voltage fan control operation. 10° to 90° adjustable differential.

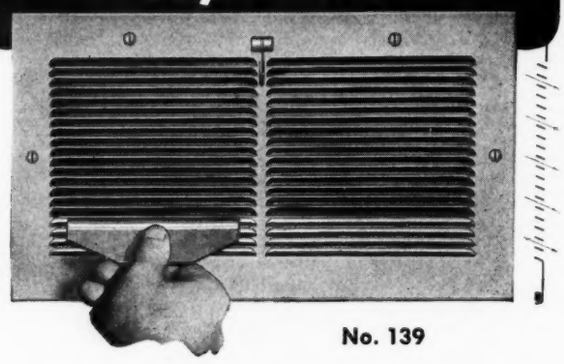
UNIT HEATER CONTROL comprised of relay and transformer (left) and two wire low voltage thermostat. Eliminates long runs of expensive line voltage wiring. Thermostat can be installed where temperature is to be controlled.

ATTIC FAN CONTROL (right) operates attic fan automatically at any desired time for any desired period. Equipped with thermostat, it will operate fan automatically on temperature rise and fall.

WRITE FOR INFORMATION AND PRICES

SAMPSEL TIME CONTROL, INC.
SPRING VALLEY . ILLINOIS

INDEPENDENT
WROUGHT STEEL *Air Conditioning Registers*



No. 139

Flexible Grille Bars Make Adjusting Easy

Always Leading . Always Progressing

This modern Independent register has attained great popularity because it presents fine appearance and high efficiency at moderate cost. The grille bars are formed of sheet metal and come regularly adjusted to direct air flow slightly downward. Being flexible, they can be bent to direct air flow to any other desired angle, upward, downward or straight outward. Materials and workmanship are of first quality. Valve is positive, free working and stays firmly in position.

Write for Catalog 41-AC

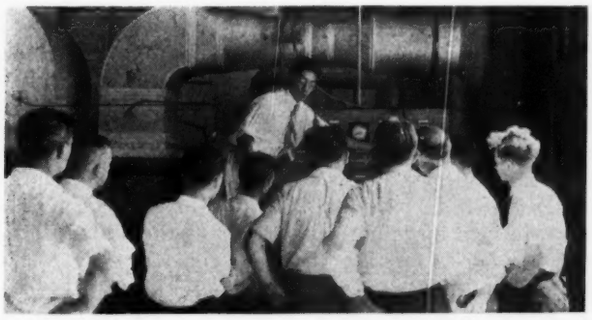
THE INDEPENDENT REGISTER CO.
3747 EAST 93rd STREET
CLEVELAND, OHIO

News Items . . . . . .

Rating Test Code

FIFTY-TWO representatives of furnace manufacturers, control and fan manufacturers etc., attended the Rating Clinic which was held on July 28 and 29 at the University of Illinois, Urbana. The objective of the meeting was to discuss the new rating code for oil-fired forced warm air heating units.

Each detail of the Rating Code was thoroughly gone over by Professors Kratz and Konzo with the representatives who attended the meeting. Numerous suggestions



Professor Konzo explaining a furnace set-up in the mechanical engineering laboratory.

for minor changes were made by the representatives all of which have been incorporated in the final code.

Manufacturers will rate their own oil-fired heating units in their own laboratory according to the Rating Test Code. They will submit the data which have been developed to a committee headed by a consulting engineer, Bert Bernstrom. After the data have been submitted to this committee and favorably passed upon by the committee, the manufacturers will then place on each one of the units tested an Association seal of approval.

The rating plan will bring about standardized ratings and will prevent much of the confusion regarding oil-fired ratings in general which have existed because the ratings will all be made on the same standard basis and according to the same formula.

◆

Administrator Restates Position on Bonuses

A statement defining bonuses which do not affect overtime payments has been issued by General Philip B. Fleming, Administrator of the Wage and Hour Division, U. S. Department of Labor. Test of such a bonus is that the payment and amount are solely in the discretion of the employer.

"At the time the Fair Labor Standards Act of 1938 went into effect the Wage and Hour Division took the position that production bonuses were part of an employee's pay and should be included in the computation of overtime," General Fleming said. "That is still the position of the Division. The Division later said that unless it could be conclusively demonstrated that any payment was a gift or a gratuity, such a payment must be added to the 'regular rate of pay' on which the time and a half for overtime is computed.

"The statement also defines the type of bonus which affects the regular rate of pay and shows how such bonuses are to be computed in arriving at overtime compensation. It also warns that weird 'bonus' schemes for the evasion of overtime payments will not be countenanced by the Division in its enforcement of the Act."

The Wage and Hour Division will closely scrutinize each "bonus" payment to ascertain:

1. Whether it is a true bonus or an evasion of the overtime provisions of the Act, and
2. If a true bonus, whether the payment is a part of the employee's regular rate of pay.

RIGHT NOW! Your Greatest PROFIT OPPORTUNITY

VIKING

HEATING EQUIPMENT for *Low Cost Housing*

VAPORIZING TYPE OIL-BURNING FURNACES, WATER HEATERS, SPACE HEATERS

To meet and beat the keen competition for low-cost housing contracts, choose Viking Vaporizing Burner Equipment (for No. 2 fuel oil). Viking units meet specifications and are *priced right!* These package units are attractively styled and quality-built throughout. They do a wonderful job of heating. One or a thousand—depend on Viking!

FACTS TO REMEMBER: Oil-Fired Water Heaters should be installed with every warm air furnace for plenty of hot water at low fuel cost . . . the SPACE HEATER season starts with Labor Day—get your share of this profitable business.

ANNOUNCING

VIKING'S FULL LINE COVERAGE OF THE DOMESTIC HEATING FIELD. GRAVITY HOT AIR—FORCED WARM AIR*—STEAM—HOT WATER—GAS*—COAL—OIL (PRESSURE BURNER).

**Warm Air Gas-Fired units supplied with Steel or Cast Iron Combustion Chamber.*

Highly efficient heating units, 70-210,000 BTU, unequalled precision in manufacture. Thousands in use, competitive in price, exclusive mechanical features.

MAIL COUPON for FULL DETAILS

Through Viking you have access to the finest and most complete manufacturing facilities of the industry. Write NOW for full details of the products, prices, delivery schedule and franchise deal.

VIKING MFG. CORP., Box 43, Strathmoor Station, DETROIT, MICHIGAN

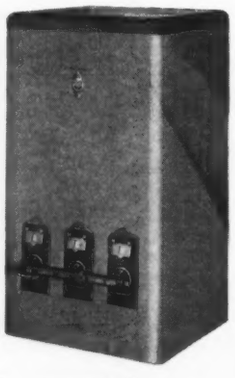
Send complete facts about the Viking line.

Name .....

Address .....

LITERALLY SCORES of EXCLUSIVE FEATURES
Bring them back to buy!

Dealers and Gas Companies everywhere praise the performance, safety and fuel-saving features offered only by PAYNE Gas Heat. For wise prospects compare, then soon return – *ready to buy!* ☆ As the Nation's largest exclusive producer of gas heating equipment, PAYNE invests thousands of dollars and man-hours annually to maintain a recognized engineering superiority. ☆ Don't recommend and sell less efficient gas heating, when PAYNEHEAT costs little if any more. Build for the future with PAYNE.



PAYNE
Gravity Unit

One of 69 models and sizes for every modern heating need. All double-tested: AGA plus PAYNE'S model Testing Laboratory

A few territories are open for representation. Address J. H. Keber, Sales Manager. Please mention this advertisement.

PAYNEHEAT
MORE THAN A QUARTER-CENTURY OF GAS SPECIALIZATION
Payne Furnace & Supply Co., Inc., Beverly Hills, California

Kruckman's Washington Letter

(*Continued from page* 44)

scared lest you people of the United States actually realize what is really happening and what all these curtailments really mean. They are afraid you may ask so many questions and make so many protests, that your activity may slow down the Defense plans.

In order to save metal, even when used in defense housing, OPM announced it would pay for all expert services in planning changes and additions to existing houses, even substandard houses, in the 210 defense areas. Any householder who wishes to add rooms and install necessary facilities, to rent space to defense workers, may go to the nearest Home Owner Loan Office, or Homes Registration Office and ask for whatever expert help he needs. Mr. Roosevelt has set aside funds from the Presidential treasury to pay for such expert services. Not only does the householder get this for nothing, but the Government agencies will help him find money to make the alterations, and the contractors or workmen who will do it well and economically. It is hoped this program will make unnecessary millions of feet of new buildings.

We hear metal priorities have closed or may close several hundred small plants. President Green of A. F. of L. has stated that more workers may be thrown out of work by the priorities program than can be absorbed by defense industries; and that even those who find jobs may not be employed in Defense until Spring.

Over 15,000 Minneapolis Homes USE HEREMETAL Chimney Liner

"The proof of the pudding is in the eating" was never more aptly demonstrated than by the consistently good performance of Heremetal Chimney Liners in Minneapolis, resulting in the installation of this superior product in over 15,000 Chimneys.

Corrosion and condensation troubles have thus been done away with in thousands of homes and clean, economical performance of heating units is assured.

HEREMETAL Chimney Liners are weather-proof, moisture-proof, acid-proof and corrosion-resistant. They are easy to install, consequently afford you the chance to make good profits with a minimum of time on the job.

Full information is available on request. Please drop us a postcard today.

The Heremetal Company
135 Aldrich Ave. N. · BR. 8611 · Minneapolis, Minn.

Some OPM'ers Are Disinterested

This paralysis of small business is regarded by one group in OPM with much the same detachment that a physician contemplates the distress of his patient. This group, mainly drawn from Big Busines or from schools and laboratories, honestly seem to think it is perfectly all right to push the smaller business around, to think for it, and to make plans for it as they might plan for the underprivileged. Together with the military thinkers, this group made the Priorities program that is the subject of Sen. O'Mahoney's proposed remedial legislation.

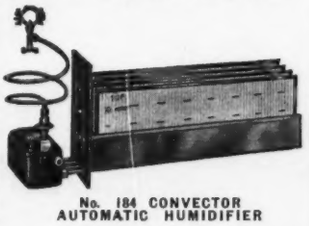
It is this same group which sincerely believes the answer to all this muddle lies in creating great cartels, defense monopoly groups, consisting of homogeneous combinations, from the largest to the smallest integrated in a specific industrial group, taking over everything from production to distribution. They would pay off the lesser units, wiped out by the process, with funds jointly contributed by Government and by the surviving monopoly.

Other OPM'ers Like Little Business

The opposing group in OPM do not think the smaller units of business should be smashed flat by defense. They seek to keep all business alive, to make it an integral part of the great defense machine by giving it *some* defense work and *some* civilian work. They think maintenance of civil industry is essential for civilian morale; that it may be partly an answer to the growing fear of inflation.

The battlefield of these opposing philosophies is the Defense Contract Service. We told you about this fine idea in the April issue. It was planned, with its

MODERN DESIGN *PLUS*
EFFICIENCY — PERFORMANCE
MAID-O'-MIST "Convector" Humidifier


No. 184 CONVECTOR AUTOMATIC HUMIDIFIER

Streamlined to meet modern furnace trends and made in sizes to fit largest or smallest furnace—in single, double or four trough units. Can be mounted in plenum or hood — either straight or sloping. Do not restrict air flow and will evaporate more pounds of water per dollar cost than other types. Efficient in operation, easy to install and priced to sell—at a generous profit for you.

CONSERVATION STARTS WITH MODERNIZATION

As a direct aid to conservation recommend modernizing old furnaces with Maid-O'-Mist Humidifiers or water line control valves. They will help increase the efficiency, reduce fuel consumption and aid in more healthful and comfortable living.

Write today for complete information.

MAID-O-MIST INC.
AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS
213 NORTH ABERDEEN STREET
CHICAGO ILLINOIS

Your Appliance Line has a "Patriotic" Oil Control... with

A-P Control DEPENDABILITY!

A-P DEPENDABLE Controls on Oil Burning Heaters and Appliances tie in thoroughly with National Defense Needs!

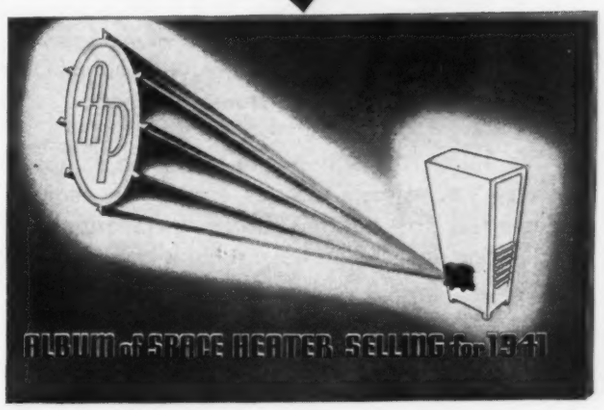
First, their DEPENDABLE "service-free" operation avoids excessive service calls — important now when Defense work is calling many of your best service men.

Second, their proven Fuel Economy is a valuable aid to OIL CONSERVATION, so widely recommended by Defense Authorities.

Fuel Economy and DEPENDABILITY have long been outstanding features of A-P Oil Controls . . . principal reasons why leading manufacturers of modern appliances choose A-P Controls as Standard Equipment. Reasons also for the fact that A-P equipped Oil Burning Appliances sell easier and STAY sold.

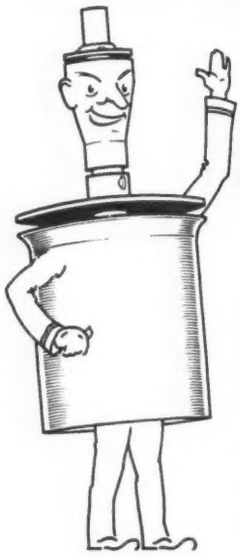
A-P DEPENDABLE Controls can help YOU to more Profits this year. The New 1941 "A-P Album of Space Heater Selling" tells HOW. Write for your copy today!

AUTOMATIC PRODUCTS COMPANY
2452 NORTH THIRTY-SECOND STREET
MILWAUKEE WISCONSIN



DEPENDABLE Oil Control Valves

"Making Burners Is Our Business"



Designed to do a specific job—John Zink Burners must be good! Wherever gas or oil is used for fuel—John Zink makes a better burner for you to use.

John Zink Series V Pre-Mix Gas Burner

This burner is being used in many National Defense Projects.

The Series "V" Burner, Pre-Mix Type, is absolutely noiseless and is especially recommended for heating boiler installations in cantonments, churches, schools and apartments.

Write for Information

John Zink Company

TULSA, OKLA.—4401 S. PEORIA AVE.

Chicago, Ill.—7309 E. End
New York City—342 Madison Ave.
Dallas, Texas—3412 Ross Ave.
Houston, Texas—5634 Lawndale

36 offices, scattered around the country, to help the smaller industrial unit to get subcontracts. It was planned to mitigate the effect of priorities in whatever form they might come. But it is probable if you tried to get help through some of these Defense Contract Service offices that you found the staff curiously apathetic. The theory did not work. The Army gave its contracts chiefly to 56 major corporations. Even recently $4,000,000,000 new Army business went to the big corporations. The Army is absolutely sincere in its belief that adequate service may be had only through the big organizations.

OPM Now Wants Sub-Contracting

OPM now has swung around to the idea of the Defense Contract Service and is striving desperately to make DCS the lifebuoy for smaller business. It is patently an effort to sidetrack modification of the Priorities Law.

It called together the Council of the OPM, composed of Knudsen, Hillman, the Secretary of War and the Secretary of Navy. The Defense Contract Service was expanded into an independent Bureau of Defense Contract Service. The present head, Robert L. Mehornay of Kansas City, was given a co-head, William E. Levis, president of Owens-Illinois Glass Company, who is a member of the OPM Production Planning Board. Mr. Levis is the "personal representative of Messrs. Knudson and Hillman."

Here is the way the new program is planned to operate: Priorities Division of OPM's Labor Division will inform the Defense Contract Service of each industry or community threatened with a close-down. The DCS will investigate and the OPM will recommend to the Secretaries of War and Navy one or more

"Williamson Furnaces Sell Themselves," says Dealer

"The Williamson Heater Company:

"A Williamson Furnace well installed will sell itself to others.

"I live in a town with many warm air furnaces installed and many different makes; but every time I have been called for a furnace, the customer will always say, 'I want one just like you sold to my neighbor,' or some friend of his. That is why I say you do not require a salesman on your payroll when you sell Williamson Furnaces. They sell themselves."

Signed XYZ . . . Massachusetts

Complete information; name, address of writer of above letter furnished on request. Phone, wire or write The Williamson Heater Company.

FREE: Complete, easily understood short method for figuring air conditioning job. You can complete your figures, price job in one hour flat. Write Dept. No. 2. The Williamson Heater Company, Cincinnati, Ohio.

Complete Line . . . Quick Service

WILLIAMSON
WARM AIR FURNACES

This is our Fifty-first year

of the following remedies:

(1) Negotiated contracts at prices up to 15% above current quotations.

(2) Orders for a responsible defense association or corporation, organized so that manufacturers may jointly handle defense work they cannot do with their individual equipment.

(3) Elimination of bid or performance bonds when necessary; inspection of products at plants to facilitate prompt payment.

(4) Reimbursement of prime contractors for additional costs resulting from extension of these policies to subcontractors.

Army-Navy Will Force Sub-Contracting

On receipt of OPM recommendations, War and Navy Secretaries will issue to their purchasing departments specific orders to carry out the procedure recommended. The new program revives the policies with which the DCS started: forms and specifications (sent to bidders for purchases exceeding $50,000) also will be available at the offices of the DCS and airmail will be used to equalize bidding opportunities; formal bid openings to be within not less than 15 days from call, except where national defense requires earlier openings; awards to be made promptly.

Call for bids to be broken down into optional units to permit smaller firms to bid; contracting officer to be empowered to divide awards, so part may go to other than low bidder. Establish more exhibits for manufacturers of specific items showing how they are made and with what tools. Where regional bidding is requested, and production facilities permit, awards will be restricted to regional bidders. Earlier delivery date proposed by bidder to weigh favorably in valuing

BUY WHITNEY-JENSEN
METAL-WORKING MACHINERY and HAND TOOLS
for LONG LIFE and ACCURACY

TOGGLE-ACTION
FOOT PRESSES
7" 10" 18" 24" THROAT DEPTHS

Simple, sturdy construction, light weight with plenty of strength, lasting accuracy, low cost, and availability for prompt shipment—these features make Whitney-Jensen Foot Presses a stand-out value for light punching and forming operations. Capacity 2" hole in 16 ga. iron, 100 holes per minute or better.

Write for Catalog 14

IMPROVED
No. 17 BENCH PUNCH

New features: Throat depth now 6½", height of throat 1⅛". Jaws are welded steel plate. Weight reduced 30%. New depth and side gauges. Capacity ¼" hole in ¼" iron. A popular punch.

OVER 80 USEFUL ITEMS FOR SHEET METAL SHOPS

WHITNEY METAL TOOL COMPANY
91 FORBES STREET • ROCKFORD, ILLINOIS

You have ⅓ more wet strength* with Ruberoid 95% pure Asbestos Paper. Think what this means in easy application when paste is applied. This extra strength—obtained by a special processing—saves time—speeds up jobs—gives your customers extra values.

For Ruberoid Asbestos Paper has everything! Wet strength, accurate caliper, color and finish. The color is a soft natural blue-white. The finish is smooth on one side—rough textured for adhesion on the other side.

We urge you to try Ruberoid Asbestos Paper for wrapping furnace pipes—protecting air conditioning ducts, wood partitions, lining stoves, ovens and gas ranges. Mail coupon for free 5-foot test sample. Compare its wet strength, flexibility, color, finish and ease of application.

** Compared with the average Asbestos Paper on the market.*

For 1000°F. Temperatures ASBESTOS MILLBOARD

A special binder and filler gives you a millboard that will, with little change in its physical condition, withstand heat up to 1000°F. We know of no other commercial millboard to equal it.

RU-BER-OID
ASBESTOS PAPERS

AA9

The RUBEROID Co., *Insulation Division*
500 Fifth Avenue, New York City

Send us your free 5-foot test sample of Ruberoid Asbestos Paper. We understand this places us under no obligation.

*Name*_____

*Address*_____

*City*_____ *State*_____

Since Ruberoid sells through wholesale trade only, please give jobber's name.

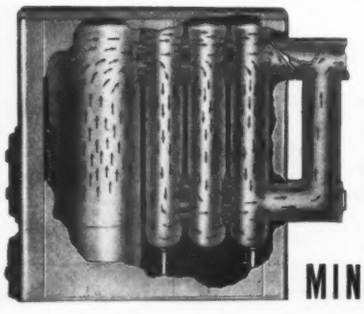
FREE THIS CANISTER CONTAINING *5 foot Sample*

Leader
TRADE MARK

KOOLSTACK FURNACES
Put MORE Heat to Work!

Patented automatic damper diverts hot gases through economizer sections until every possible unit of useful heat is surrendered.

The KOOLSTACK principle is based on a natural law . . . mechanically simple . . . nothing to get out of adjustment.



NOTICE

How the patented automatic damper prevents escape of hot gases.

MINIMUM FLY ASH

The KOOLSTACK principle gives LEADER dealers MORE to talk about . . . MORE to sell!

Available in BOTH cabinet and round cased types.

HAND FIRED . . . STOKERS . . . OIL BURNERS

Other advantages to set the Koolstack dealer apart from any on the market —First: Easily installed, even in close places. Every part will clear a 31" opening. Second: Koolstack furnaces are of all welded construction, permanently gas and smoke tight. Third: There is a Koolstack for every operating load from 50,000 to 200,000 B. T. U.'s.

WRITE TODAY

LEADER IRON WORKS INC.
DECATUR ILLINOIS

2841 NORTH JASPER STREET

bids. Statement will be required with each proposal of $50,000, showing how bidder will subcontract on dollar basis. No new machine tool delivery, nor priority, to be given contractor, where commitment has not been made in contract, either new or existing contracts, unless and until the contractors can satisfy the contracting officers that no known qualified subcontracting facilities are available within reasonable distance, except where limited new tools are considered essential to complete production or assembly line.

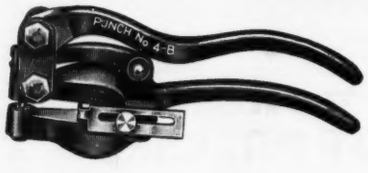
The new program will work, if the Army officers can break the habit-system they have established in the Mobilization Plan which has been in the making 20 years. This involves confidence in a group of great corporations potentially trained in specific military work by the educational orders for which Congress in the past provided millions of dollars.

Building Material Policy Not Established

Another conflict in Priorities directly affecting the building industry finds Defense Housing Coordinator Palmer apparently not able to come to an easy understanding with Federal Works Administrator Carmody, FHA Administrator Ferguson, and HOLC Administrator Fahey. The crystalized program for building materials priorities still is unpublished.

Meanwhile, every element involved in the industry does not know exactly what to do; no one knows exactly what may be designated as restricted building materials and equipment installed in buildings; and no one has yet defined the boundaries of the defense areas which in the middle of August numbered exactly 230.

A REAL Time Saver



The No. 4B PUNCH by Whitney

This punch is accepted by leading contractors and dealers as a real time-saver in the shop and on the job. Men who use it every day know it can't be beat for clean, fast punching. Has a capacity of ¼" through 16 ga., weight 3 pounds, 8½" in length, depth of throat, 2". Complete tool includes three punches and three dies of specified sizes with die adjusting key.

W. A. WHITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.

Materials and Contracts Are Promised

(*Continued from page 39*)

to facilitate payments to contractors.

"In submitting bids on competitive work, bidder will attach a filled-in questionaire regarding his plans for sub-contracting. The prospective contractor will also state whether he has adequate plant facilities and trained labor on hand and if not what methods he proposes using to overcome the inadequacies; whether he possesses sufficient working capital and the extent to which he will need new machine tools and if these tools are immediately available to him.

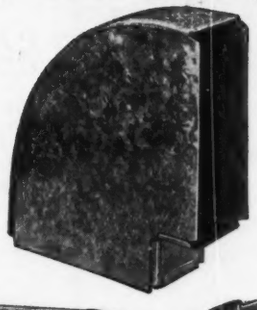
"Contracting officers are authorized to divide awards so that parts can go to several plants instead of to single low bidders. Nearly all manufacturers successful on Army contracts in the future will have obligated themselves to arrange sub-contracting in their own region so that other industries in the vicinity suffering from lack of civilian contracts can take up a share of the defense load."

With this order in effect it is our suggestion that readers visit their regional office of the Defense Contract Service (there is an office in each Federal Reserve Bank) and ask for the list of

AJAX

PREFABRICATED DUCTS—FITTINGS
for Forced Air and Air Conditioning Installations

24-hour Delivery Service



Our Engineers Are At Your Service

Our Catalog "A" (Gravity Fittings), Catalog "B" (Forced Air Fittings) are yours on request.

THE CINCINNATI SHEET METAL & ROOFING CO.
Furnace Fitting Department
230 E. Front St. Cincinnati, Ohio

IMPULSES SHOULD BE TAKEN HOT!

ALTER EGO: Literally, "one's other self"—the still, small voice that questions, inspires, and corrects our conscious action.

We've got to buy a welder. That's settled; but I blow hot and cold on all of them. They don't seem to differ materially.

ALTER EGO: There you are! When your mind is in a state of uncertainty—then the tiniest impulse directs it to either side.

Then what BIG impulse will set my mind in a sure channel?

ALTER EGO: Forget welders. THINK ABOUT WHAT YOU WANT A WELDER TO DO FOR YOU.

I DO know we must get faster production, better welds and lower costs on all *jobs.*

ALTER EGO: Well, that in itself says you MUST have DUAL CONTINUOUS CONTROL so the operator can adjust for the right TYPE and SIZE of arc to suit the job—to suit the position of the work—to suit his particular technique—to suit the type of joint—to suit the kind of metal. He gets these with the easy, fine adjustment of his DUAL CONTINUOUS CONTROL—just as simply as he gets the right station and the right volume on his radio.

• •

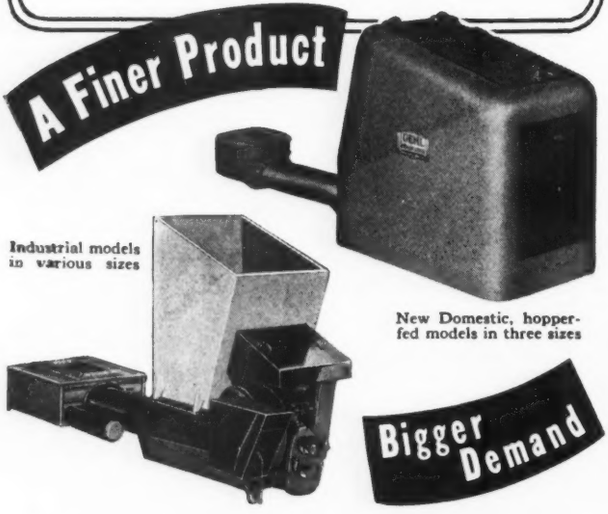
LINCOLN SUGGESTS: To warm up to the *right* welding machine, base your analysis on *performance values.* Find out which machine, under *all* conditions and with *all* types of work, will produce the *highest quality welds* at *lowest cost.* A small advantage in performance often can save hundreds of dollars yearly—soon paying for the welder. Bulletin 412 will stimulate your impulses.

Copyright 1941, The Lincoln Electric Co.

LINCOLN-SHIELD-ARC-WELDING THE LINCOLN ELECTRIC COMPANY Cleveland, Ohio
Largest Manufacturers of Arc Welding Equipment in the World

New Sales Increases FOR THE GEHL STOKER

A Finer Product



Industrial models in various sizes

New Domestic, hopper-fed models in three sizes

Bigger Demand

● Yes, we expect Gehl Dealers to beat that 110% increase of last year. The stoker demand is still growing. New Gehl models offer outstanding improvements.

Gehl Domestic stokers have been redesigned to set closer to the furnace, yet allow extra clearance for the fire door. The rounded corners of the retort are an advantage in furnaces with round fire pots. The Gehl has a heavy, all-cast chassis instead of sheet steel. It gives extra rigidity and resists the rust and corrosion caused by moisture and acids in fuel.

● Stoker Sales are Blowing a Gehl.

Get Going With Gehl

A complete line of domestic, commercial and industrial stokers. WRITE FOR NEW LITERATURE and details of our liberal dealer plan.

GEHL BROS. MFG. CO.

Est. 1867

West Bend Dept. A. Wisconsin

contracts awarded in their area and the names of the successful contract holders. Also ask to see the display of products which can be broken into sub-contracts. And these offices are supposed to have a record of all items now in production or up for bid. This same office can supply the forms you have to fill in and advise with you on what you hope to do or can do.

◆

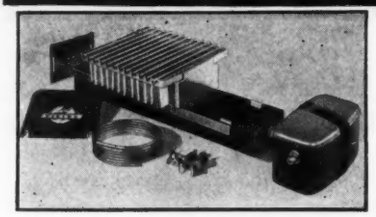
Effect of Draft On Stoker Operation

(*Continued from page* 61)

of fly ash found when operating with Low Draft. When operating at High Draft there was 1.2 pounds present in the boiler tubes, or an increase of, roughly, 40 per cent.

Again, the pick up after the week-end of "Hold-fire" was decidedly best with Low Draft. (Chart 4). In terms of the home owner, this means that response to a thermostat demand is much more rapid and sustained. From the Chart it can be noted that the steam pressure went up almost instantly after a week-end of "Hold-fire" at Low Draft while for the excessively High Draft, it was 10 minutes before any steam was raised.

VIKING HUMIDIFIERS



ALL IN FAVOR SAY "AYE"

Manufacturers, jobbers, dealers and consumers who have seen and used them say "Aye" in favor of VIKING Humidifiers when a vote is taken on their quality and trouble-free dependability.

VIKING Humidifiers assure correct humidification for the requirements of forced air and gravity systems.

Special VIKING features include the new streamlined Plastic Float Tank, which cannot rust nor corrode, the non-breakable "Cello-Sponge" Evaporators which have an exceptionally high absorbing and evaporating rate, and the trouble-free automatic Top-Seat Float Valve, easy to clean and adjust.

Write for the whole story

VIKING AIR CONDITIONING CORP.

5600 Walworth Avenue Cleveland, Ohio

I want to point out that, although the best appearing, and deepest fuel bed was present when running with the Low Draft, yet with all these settings the performance was satisfactory. However, there was a real difference in results to the home owner. With the better setting, the owner would get greater efficiency, better heat because of faster response and less overheating in the "Off" periods. The owner also would get better clinkering and less fly ash.

I also want to point out that in these tests only the draft adjustment was varied. Suppose too much air had originally been turned on from the stoker fan. Suppose, also, there had been a lot of bad air leaks around the boiler. Then the owner would have been still further from reaching the best operating conditions than he has a right to expect.

We can increase stoker satisfaction by studying combustion, and heaters and then applying our knowledge in adjusting every installation. I particularly want to point out the advantage of the use of a barometric draft regulator, properly adjusted. I am sure that many companies who are quick to spend considerable money for literature to sell stokers might well spend three or four dollars for a draft gauge in order to properly adjust every installation and give every owner the best in satisfaction in order that every owner will tell a convincing story of stoker heat to his neighbors.

COLD RUNS BANISHED!

THE VICTOR HEAT BOOSTER

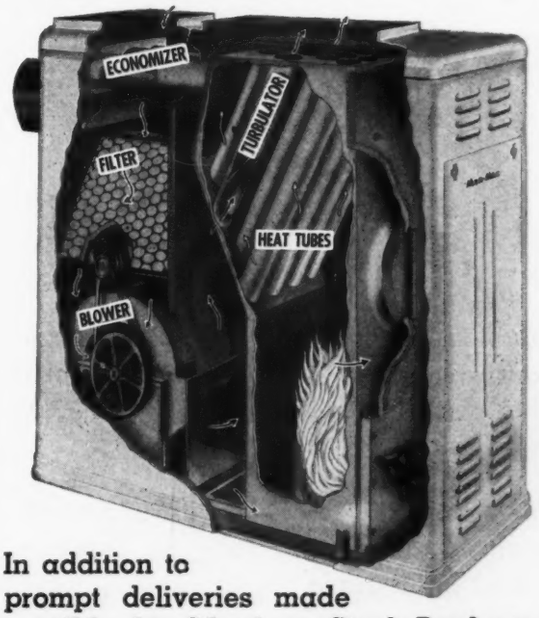
This amazingly effective device not only boosts hot air into hard-to-heat rooms, it boosts profits into the pocket of the furnace man.

The Victor Booster needs only to be set in place, plugged into any electric outlet, and out pours a rich flow of hot air—not from an overfired furnace, but from an ordinary everyday fire. Two models, floor and wall. Liberal Discounts. Write today for detailed literature and prices.

VICTOR ELECTRIC PRODUCTS, Inc.
Dept. HB-7 2950 Robertson Ave. Cincinnati, Ohio

ASK YOUR JOBBER OR WRITE DIRECT

To be sure of PROMPT DELIVERIES sell MOR-MAC!



In addition to prompt deliveries made possible by Morrison Steel Products, Inc. exceptional manufacturing facilities MOR-MAC gives you all these SELLING FEATURES:

DESIGN—Only MOR-MAC employs the Tubular principle of warm air heating—the most efficient, time-tested method of heat transfer.

CONSTRUCTION — Extra heavy gauge, all-welded steel construction throughout.

BEAUTY—Stream-lined, with a beautiful green spatter-coat Hammerloid finish.

EFFICIENCY—Mor-Mac has a larger percentage of DIRECT heating surface than any other unit of the same size.

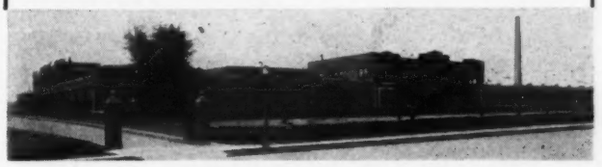
PRICE—MOR-MAC is priced to sell against your most serious competition.

For full details of the

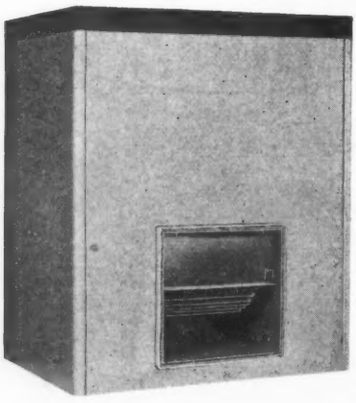
MOR-MAC SALES PLAN

write or wire

MORRISON STEEL PRODUCTS, Inc.
601 AMHERST STREET BUFFALO, N. Y.



SOLVE THAT "HARD-TO-HEAT" PROBLEM WITH REX AIR-PAK BLOWER-FILTER UNITS!



You'll find it profitable this fall to make your customers' homes more comfortable with inexpensive REX AIR-PAK installations.

The new "EJR" models with improved features are just in time for autumn warm air furnace modernization jobs. With their attractive streamlined cabinets, these low-priced units are ideal for converting gravity warm air plants into forced air heating systems.

There's a big season ahead for REX AIR-PAKS, as many home owners in your community want the comfortable circulation of warm air the units distribute throughout the house. Here is a vast field of prospects that offers a real profitable market, especially now when outdoor work falls off.

Write now for our new catalog bulletin No. 238 which contains the latest data on REX AIR-PAKS.

Air CONTROLS INC.
Div. of The Cleveland Heater Co.
1933 W. 114th St. Cleveland, Ohio

Booster Fan In Cold Air Boot

(*Continued from page 62*)

fans. Now, unless the piping faults are obviously impossible of correction, Richardson-Balfe recommends the booster fan as a means of making too-small pipes carry the required air volume and of providing increased air flow through the rooms.

New House Prices "Ceilinged" by Gravity Bids

The problem in new houses is how to sell the buyer as modern a system as possible at prices "ceilinged" by gravity proposals. Most Terre Haute buyers are interested in some form of forced air heating. Many of them would like to buy a true pressure type fan system, but find such a system too expensive. Richardson-Balfe have found it comparatively easy to convince such owners that the furnace booster fan, properly installed in the cold air boot, will give them the kind of comfort they seek with very little added cost.

Richardson-Balfe use this argument especially when competition is advising straight gravity. A form of forced air heat at no added cost usually gives the edge to the booster fan.

We're warning you! You won't have much time for summer loafing when you take on the PREMIER Line. This line sells the year around. It's the most complete line on the market — and it's making the PREMIER dealer the leader in nine out of ten localities. Find out NOW about the exclusive PREMIER Franchise!

PREMIER FURNACE CO.
Dowagiac, Michigan

PREMIER
- Warm Air Heating
- Air Conditioning
- Automatic Fuel Burning
- Cooling Equipment

The Year Round Line

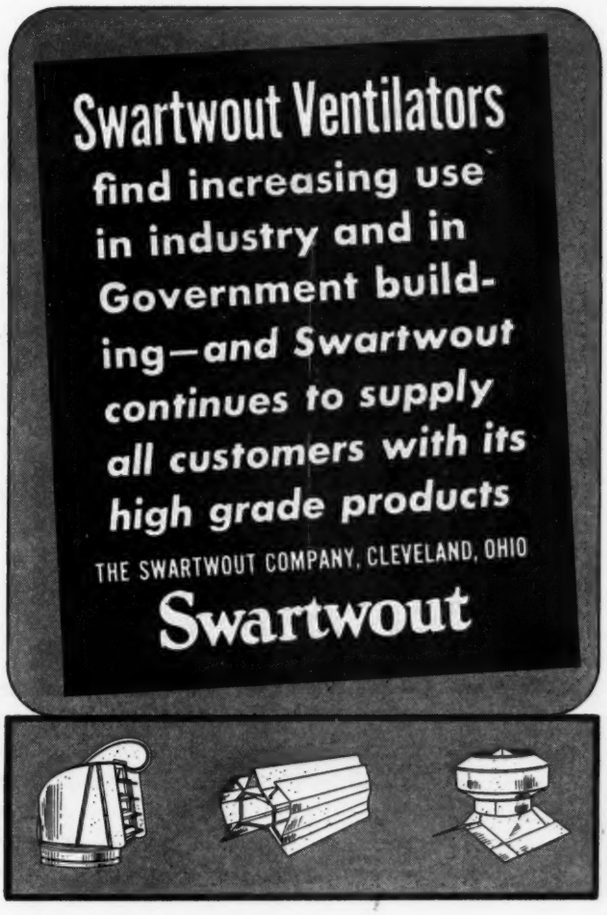
"At no added cost" is explained thusly by the firm—"When a booster fan is installed it is not necessary to use an oversized furnace for proper comfort. A home which normally would get a 24-inch gravity furnace can be heated with a 22-inch furnace if a proper booster fan is properly installed. This is a saving of several dollars.

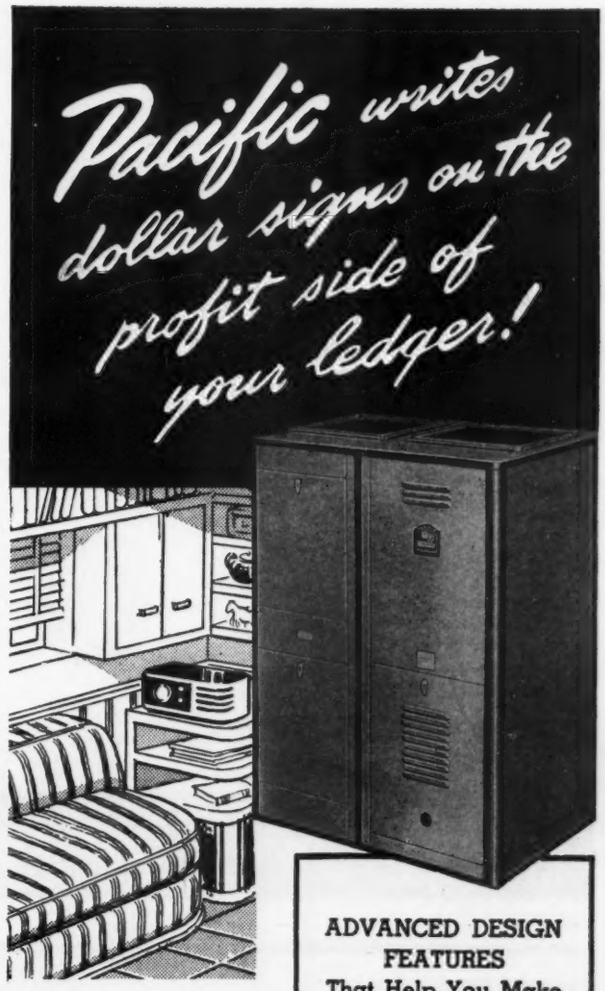
"Furthermore, we have been able to convince buyers that a 22-inch furnace with a booster fan is a better buy than a straight gravity furnace of 24-inch size.

Fan Placement Important

"We have also found that a room which normally will get a 12-inch pipe can be adequately heated with a 10-inch pipe if there is a good booster fan in the basement. This is another saving of two to five dollars per warm air run."

Proper installation methods are stressed by the company. The diagram shows where and how the fan is installed. Particular attention is paid to proper placement, which the firm believes is behind and facing directly into the duct opening at the bottom of the furnace casing. This location eliminates the possibility of air turbulence within the cold air boot or in the bottom section of the casing. If there are more than one cold air pipes, the pipes are brought together ahead of the cold air boot so that one boot in which to place the fan is obtained.


Swartwout Ventilators
find increasing use in industry and in Government building—and Swartwout continues to supply all customers with its high grade products
THE SWARTWOUT COMPANY, CLEVELAND, OHIO
Swartwout



The De Luxe A-69 Forced-Air Furnace typifies the dramatic sales appeal packed into every unit of PACIFIC'S complete, profit-stimulating line.

Behind it are many years experience in furnace design. All the features that count in making sales are there—smart design that enhances the appearance of any well-furnished basement playroom, PLUS unsurpassed performance. . . . Operates quietly and AUTOMATICALLY to air condition your customer's home in winter and ventilate it with refreshing, filtered air in summer.

PACIFIC A-69 furnaces are shipped completely assembled in two separate sections — one containing a blower and the other the heating unit. They are quickly and easily installed on the job without expense of re-assembling, thereby saving time and installation costs.

There are MANY desirable reasons why you and your customers will prefer PACIFIC products. These are explained in our new catalog. You'll be impressed with the liberal PACIFIC Dealer set-up and its unusual opportunities for profit. Write for details TODAY!

ADVANCED DESIGN FEATURES
That Help You Make PROFITABLE SALES

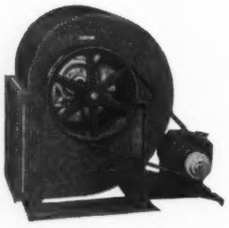
PACIFIC'S exclusive Round Heating Element ...an extra step forward in increasing initial velocity, insuring uniform heat distribution and providing more effective radiation surface. Rigid, durable, leakproof.

PACIFIC Multi-Tubular Burner with heavy cast-iron fire-box liner. Fixed air and gas mixtures provide correct flame and uniform burner operation at all times.

YOUR **BLOWER** REQUIREMENTS

available at

Schwitzer-Cummins Company



● **BLOWERS FOR EVERY PURPOSE**
HY-DUTY Blowers, 9¾" to 25".
Top and Bottom Horizontal, and Top and Bottom Vertical Discharge.
Top and Bottom Motor Mounting.
Dual Units also available.

● **CENTER DISC WHEEL**
Double Inlet, Double Width.
Reinforced Center Disc.
Designed for Modern Air Conditioning and Heating Applications.
Sizes, 4½" to 50".

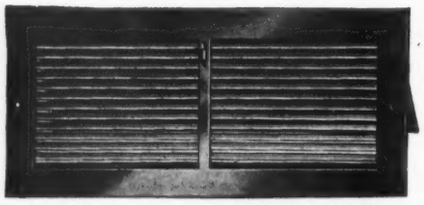
● **SINGLE INLET WHEELS**
For Oil Burner, Stoker, and Air Conditioning Applications.
Sizes, 4½" to 50".
Variety of Blade Lengths for each diameter.

● **ENGINEERING DATA**
Write for Catalogues showing complete Performance Data.
Experienced Engineering Department available to help solve your Air Handling Problems.

BLOWER DIVISION
SCHWITZER-CUMMINS COMPANY
125 FAN STREET INDIANAPOLIS, U. S. A.

NEW
AIR CONDITIONING REGISTERS

The New Rock Island line of Air Conditioning Registers now shown in complete new catalogue just off the press.



No. 622 Wall Register---Horizontal Vanes

The New Rock Island Air-Vane Registers are of bar type fabricated construction—Attractive Appearance—Rigid Construction—Vertical or Horizontal Vanes—Simple, secure adjustment.

Dealers Net Estimating Book, a time and money saver, gives full particulars, prices, etc.

Mail Coupon Today

ROCK ISLAND REGISTER CO.
Rock Island, Ill.

Gentlemen:
Please mail me a copy of your dealer's net estimating book.

Name .....
Street Address .....
City & State .....

Earth Floor Plenums

(*Continued from page 57*)

difference. If the *resistance* to heat transfer of the floor illustrated in Fig. 3 is taken at 100%, then the corresponding resistance to heat transfer of this construction in Fig. 4 is 179%. In other words, it is 79% more effective in preventing heat transmission from the room air to the air in the return air plenum space.

Fig. 5 shows 3⅝ inch of rock wool fill between the joists supported by sheathing nailed on the bottom of the joists. This is construction No. 23-c in Table 3 of the Technical Code, and the Code recommends that the rate of heat transmission be taken as 0.08 Btu per square foot of floor area per degree temperature difference per hour. (The theoretical or calculated rate of transmission through this construction is somewhat less than 0.08, but the Installation Codes Committee of the National Warm Air Heating & Air Conditioning Association felt that it would be more conservative and more desirable to recommend the co-efficient 0.08 rather than to advise the basing of calculations on a lower co-efficient.) Again taking resistance to heat transmission of the floor shown in Fig. 3 as 100%, the resistance of the construction in Fig. 5 is 425%.

Where construction cost must be held to a minimum and the heating contractor can't induce the owner to seal the bottom of the joists either with rigid insulation or use a rock wool fill, the method shown in Fig. 6 is recommended as a practical means of making the floors warmer at very small cost. This is accomplished by using laths or other wood strips to fasten building paper to the joists and thus provide a dead air space between the paper and the underside of the sub-floor. The calculated rate of heat transmission through such construction is 0.26 Btu per hour per square foot of floor area per degree difference between temperature of air at the floor line of the room and temperature of air in the return air plenum. Again taking 100% as the *resistance* of the construction in Fig. 3, the thermal resistance of the construction shown in Fig. 6 is 132%.

Can the Idea Be Made to Work?

The hardest question to answer is this: "In general, has this system operated satisfactorily?" In answer, I would venture the opinion rather cautiously that the heating contractor who has the benefit of a broad background of practical experience and who uses reasonable judgment *can* get satisfactory results. I want to make such a statement "cautiously," because I have known one or two very successful heating contractors who

THE BEST ANSWER!

★ BETTER PRODUCTION ★

INCREASED EFFICIENCY

★CUT ANY SHAPE
★ANY SIZE SHEET!

Production problems quickly smooth out when there's a Marshalltown Throatless Shear on the job. Does hundreds of odd shearing jobs better and quicker —from straight splitting to any shape imaginable.

Available in sizes from 18 gauge to ½" capacity.

No. 18 Hand Power

MARSHALLTOWN THROATLESS SHEARS

★ Send at once for special shear bulletin! ★

MARSHALLTOWN MFG. COMPANY
920 Nevada Street, Marshalltown, Iowa

QUALITY EQUIPMENT-- FROM HESS-- COSTS LESS

DEALERS---Write for our New 1941 Portfolio

By selling — repairing, modernizing or replacements, needed by owners of a majority of heating plants now in use.

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HESS BLOWER FILTER UNITS
HESS WELDED STEEL FURNACES
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ARE GREATEST VALUES AT LOWEST PRICES

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The Hess line is complete for every dealer requirement, distinctively different and more saleable. Financing plan and territory plan—helps Hess dealers.

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1211-27 S. WESTERN AVE. Founded 1873
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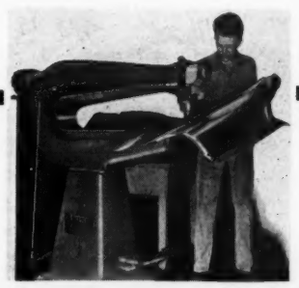
Cut Sheets 3 to 5 *at a time* . .

LIBERT *Hi-Speed* SHEARS

In recent production "speed-ups" Libert Hi-Speed Shears—10-gauge capacity—are daily cutting 3, 4, and 5 sheets of Steel AT A TIME! All quick, clean cuts, requiring no further finishing. This is typical of the job Libert Hi-Speed Shears are doing for everyone using Sheet Metal. Let us tell you about Libert's unusual speed, accuracy, flexibility, efficiency, economy. It's a story that helps you to savings, profits.



One of eight Libert Shears at North American Aviation Plant, Inglewood, Calif.

LIBERT MACHINE COMPANY
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Manufacturers of Shears since 1915

Libert Hi-Speed SHEAR

WHEN YOU BUILD TO LAST USE MAZEMADE

SOLID COPPER NAILS

Most permanent of all nails—solid copper nails are manufactured by W. H. Maze Company in special designs for asbestos, and slate roofing, cornice and valley sheet metal work. Now conveniently packaged in 5-lb. cartons. By the manufacturers of Maze Zinclad Nails—since 1854.

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The "SCREW THREAD" for greater holding power

Imbeds in the wood as the nail is driven. Cannot work out!

FIVE STYLES
All Sizes for

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SLATE
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A better design for every purpose. Full range of sizes. WRITE FOR SAMPLE CARD!

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WITH AN
ACME "Hot Spot" WELDER

Proven utility for over 26 years in thousands of sheet metal fabricating plants.

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Complete Range of Sizes

Lifetime Guarantee!

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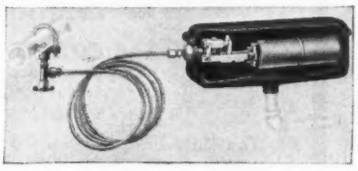
The valve that MAKES HUMIDIFICATION UNFAILING



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Sensational Automatic Shutter

Made with steel louvers and a spring mechanism which operates with less resistance to the fan or blower than aluminum louvers. Not only do the louvers open easier and wider, but they also snap tight shut when the air current stops. Uniform movement of each louver—without flapping or flutter. A sensational improvement over aluminum shutters.

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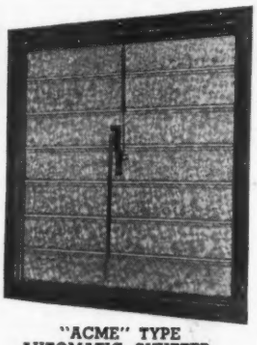

"ACME" TYPE AUTOMATIC SHUTTER
Rear View (Closed)

Free CATALOG

ELGO SHUTTER & MANUFACTURING CO.
6906 W. Jefferson Detroit, Mich.

have had trouble with such jobs but I *think* that in each case the trouble was due to the physical impossibility of their watching every step of the building construction and every step of the plant installation.

I think it's decidedly risky for anyone to try to install jobs of this kind "out of a text book" because there are too many variables involved, variables for which no adequate rules have yet been laid down. Probably 90% or more of American Artisan readers are practical heating men, and in the aggregate, they can point to literally thousands of forced air heating and winter air conditioning jobs where newcomers in the industry have figuratively "lost their very shirts" because they relied too much on text book rules in the design and installation of their systems. Every out-of-the-ordinary job is bound to be somewhat of a gamble and the chances are all in favor of the contractor who can apply sound judgment *based on extensive PRACTICAL EXPERIENCE.*

◆

Liability To Third Persons

(*Continued from page* 81)

for a particular purpose requiring security for the protection of human life, and it was therefore an exception to the general rule that no liability exists against a contractor of work in favor of one injured by a defect therein after the work has been turned over to and accepted by the owner.

"We are of the opinion that the facts in this case bring it clearly within the exception to the rule above stated, and that justice requires that [defendant] should compensate [plaintiff] for the injuries which she has sustained by reason of the defective installation of the grating * * *. Judgment affirmed." (163 N. E. 162.)

Conclusion

In the light of the facts and holdings of the foregoing cases, clearly a heating contractor may incur serious liability to third parties for injury resulting from defective work; and the fact that the work has been accepted by the owner, may not relieve the contractor where the defects are imminently dangerous to parties using the work for the purpose of its installation.

Of course, each case of this character will necessarily turn upon its particular facts and circumstances; so hard and fast rules have little application here. But, as examples of situations in which the facts have been held sufficient to place liability upon heating contractors for defective work, the cases reviewed are squarely in point.

★ SETS STRONGER ★

DRIES FASTER

YOU GET A TIGHTER JOINT and IT STAYS TIGHT

LASTS LONGER

with LACLEDE FURNACE CEMENT

★ TRY LACLEDE FURNACE CEMENT YOU be the judge

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LACLEDE FIREZIST hand moldable refractory plastic for lining warm air furnaces, stokers, oil burners. *Ask for complimentary sample.*

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DOES DOUBLE DUTY ON ONE MAN'S TIME!

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50 YEARS OF LEADERSHIP
The Time-Tested
ATH-A-NOR

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If you've been looking for a fast-moving, top performing gravity furnace to round out your line, investigate the ATH-A-NOR now! A postcard request will bring literature.

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• ECONOMY
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. . . write today for further information!

MANUFACTURERS OF QUALITY HEATING EQUIPMENT FOR OVER 50 YEARS

MAY-FIEBEGER COMPANY
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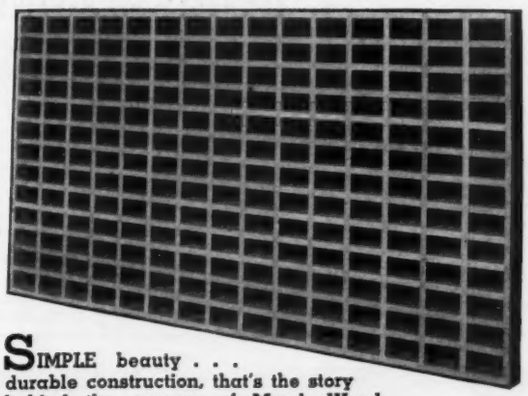
MARSH WOOD FACES
Durable • Attractive



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Constructed of kiln-dried oak and machined to a true square finish on special machinery designed for making wood faces, you can add them to your line with full assurance of long, enduring service to your customers.

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with Breuer's Ball Bearing
TORNADO
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5 NEW MODELS
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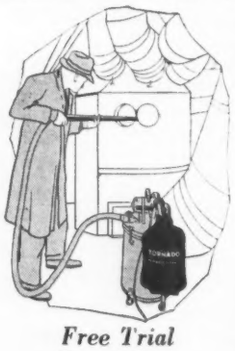

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A. G. BRAUER SUPPLY CO.
Distributors of All Heating and Air Conditioning Equipment
2100 Washington Ave. St. Louis, Mo.

Washington Heating Code

(*Continued from page* 51)

4. Appropriate arrangements shall be made to minimize vibration or noise, which may be originating in the heating unit, fan, or motor from being transmitted to the duct system through the supply or return connections, or being transmitted through the floor, as for example, in the case of conditioner supported by floor joists.

C. Accessibility

1. Ample clearance shall be provided around furnace to allow ready access for cleaning of all heating surfaces and for ready removal of filters, burner parts, motor and controls. Fan and motor shall be readily accessible for adjustment and lubrication.
2. Conditioner shall not be located so that it will in any way obstruct servicing of water heater or other appliances.

II. PIPING, CHIMMNEY AND FLUE CONNECTIONS

All gas piping, chimney, and furnace flue connections shall be made in accordance with the Gas-Fitting Regulations of the District of Columbia and other applicable local codes

III. ELECTRIC WIRING AND CONTROLS

A. All electrical wiring and controls shall be installed in accordance with the District of Columbia Electrical Code and other applicable local codes. In addition, the following standards shall apply:

B. Electric controls shall be of the recommended type and shall be installed by a responsible organization capable of rendering twenty-four hour service.

C. Wiring

1. Transformer shall be placed in ventilated steel cabinet of the standard type used for electrical construction, except when such transformer housing is furnished as part of the heating unit.
2. The transformer shall be fused with a three ampere fuse on the secondary side, and care shall be taken to fuse the white wire. Each fuse block must be in the same cabinet as its transformer.
3. All thermostat wires shall not be less than number eighteen (18) cotton covered and paraffin insulated.
4. Thermostat wires entering the steel cabinet shall pass through a porcelain bushing in the side of the cabinet unless otherwise protected.

D. Thermostat

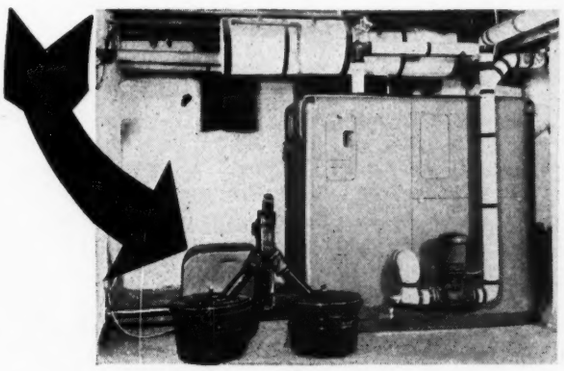
1. The thermostat shall be of a low voltage, recommended type.
2. Thermostat shall be located in a first floor room which is substantially equally responsive to changes in outdoor temperature with the majority of rooms in the house. It must not be pocketed in corners, alcoves, or be-

Boom Year for Domestic Stokers!

It's a ripe market for a good stoker line. And, the **FREDERICK** line supplies a stoker for each of the varied problems you encounter in residential heating—and in commercial installations, too.

Volume priced and mechanically simple, **FREDERICK STOKERS** have every feature for comfort and convenience and economy in operation . . . competition is met—or excelled.

Ask about them. Complete information about the stokers and the liberal Frederick Profit Plan sent promptly on request (on your letterhead) to The **FREDERICK IRON & STEEL COMPANY**, East Street, Frederick, Maryland.



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Bituminous or Anthracite . . . Made by Frederick—builders of good stokers for 23 years.

We Use **CLARAGE FANS** because Every Wheel is BOTH Statically and Dynamically Balanced

At left — complete fan for forced air heating or year-'round conditioning. Very compact. Built in 10 sizes.

Or wheels only in any of 10 sizes to give any desired volume and pressure.

TRY **these QUIET-RUNNING UNITS**

Standardize on Clarage — and protect your jobs against "fan troubles." Perfectly balanced wheels, improved bearings and slow operating speeds insure QUIETNESS — guarantee long service. Most widely used equipment in your field. Write for Bulletin 33 and see why!

COMPLETE AIR CONDITIONING • COOLING • VENTILATION • FACTORY HEATING • MECHANICAL DRAFT • FANS and BLOWERS for INDUSTRIAL NEEDS

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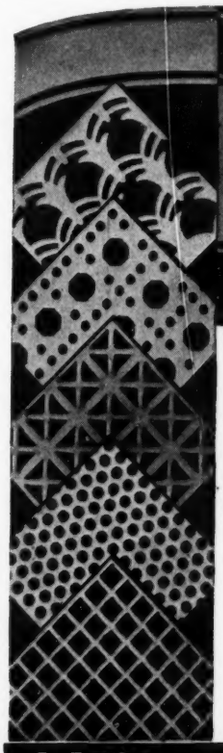

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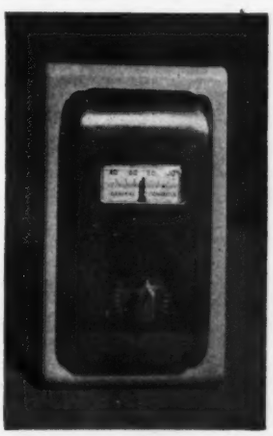
TRIMTHERM

GENERAL CONTROLS THERMOSTAT OF TOMORROW



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SURFACE MOUNTING
With flush appearance; no recess in wall.

½° F. DIFFERENTIAL
Without false heat input.

UNOBTRUSIVE
Extends but 13/16" off the wall.

CORRECT DESIGN
Harmonizes with vertical walls.

PLASTIC BASE
Thermally isolates thermostat from wall.

VISIBLE MARKINGS
All calibrations easy to read.

KNOB ON COVER
No wall smear.

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A GRAND RAPIDS FURNACE CLEANER

Will make your fall work more profitable

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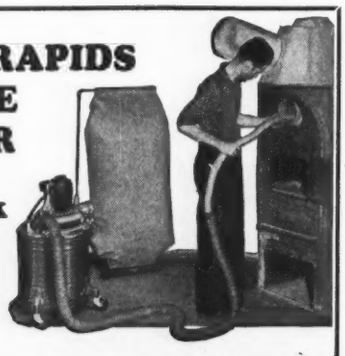

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SINCE 1880

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Your work will proceed faster and neater when you use Bremil Portable Shears on the job or in the shop. Write today for literature showing complete line. Prompt shipment can be made from stock.

ALL-ALLOY No. 2 cuts up to ¼" steel plate.
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Special blades may be obtained for shearing stainless steel.

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*VOLUMETER
Controls the air volume without altering static pressure or velocity.

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Regulates the adjustment of VOLUMETER while the burner is operating.

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hind open doors, nor should it be exposed to drafts from stairways or doors or to heat from direct sunlight, kitchens, open fireplaces, or direct drafts from supply registers.

3. Thermostat shall be located approximately five (5) feet above the floor on an inside partition at least three feet (3) from an outside wall.
4. Thermostat shall not be installed over or adjacent to stud spaces containing warm air risers, flues, or hot water pipes. It shall not be installed directly above a supply register.

E. Furnacestat

1. The furnacestat shall be accessibly located in the supply plenum chamber close to the unit, unless it is supplied as part of the heating unit assembly.
2. The furnacestat shall be provided with a graduated temperature scale and with means for ready and independent adjustment of the cut-in and cut-out temperature.

F. Fan Motor Switches

A manual motor cut-off switch shall be provided. This switch shall be located within sight of the unit.

[To be continued]

◆

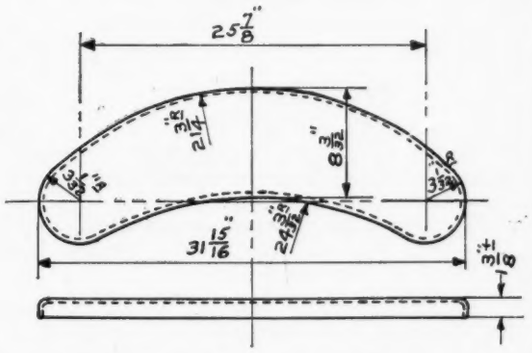
Konzo-Chimney Constipation

(*Continued from page* 50)

8. Make sure the check draft opening closes easily and tightly.
9. If the chimney is short, add an extension. (See Fig. 3.) In some cases it may be advisable to try short lengths of metal pipe to see whether conditions are improved, before proceeding with a brick extension. In extreme cases where all other means seem to fail, it may be necessary to resort to an induced draft fan to give a positive draft.
10. Prune branches of trees that may be interfering with draft.
11. Advise the homeowner to try higher volatile, non-coking coals, of prepared nut or stove sizes. Some coals form a hard, solid mass of coke that requires occasional poking to allow the air to pass through. Some coals tend to form clinkers that cover the grate bars and choke the air supply to the fuel bed.

    Advise the homeowner on the proper method of firing the fuel. (See Fig. 7.)
12. Remove vent connections from other appliances that enter into the same flue as the furnace. If possible locate these vents into some other flue. Insulated vents are commercially available that may be used in some cases.
13. In some cases the only necessary move is to give the homeowner a thorough course in the care of the furnace, including the method of firing, the proper control of the dampers, and the best way to remove clinkers and ashes to

RADIATOR CRESCENT HEADS



● "Commercial" Crescent heads are designed to minimize the amount of material required and to shape the radiator to give the best thermal efficiency. Heads are formed cold and of one piece. The flanges are of sufficient length to allow riveted or welded construction. All heads are exactly the same so that wrapper sheets can be formed and the radiator assembled with speed and economy.

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YOUNGSTOWN, OHIO

Furnace Men Say
THARCO
First, Last and
ALWAYS

THE ARMSTRONG COMPANY
DETROIT DALLAS CHICAGO

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You might get this on a Quiz Program. It stands for several things, but to us it means

PERFORATED METAL

And we know all the answers to that question — if your program requires perforated metal in stainless steel, brass, aluminum, bronze, steel, monel or copper, be sure to get our prices.

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-the Superior Vent Pipe
This trade-mark is fast becoming known from coast to coast. It stands for a complete system of vent piping for gas, oil, or coal appliances. It consists of lengths of vitreous enamel coated steel pipe and fittings which are insulated with a high temperature prefabricated asbestos insulating wall. This system of outlet and vent piping can be installed inside of partitions or walls.
Vitroliner is being used extensively for low-cost housing projects. Vitroliner, with Fyrex insulation, eliminates the standard masonry chimney.
Write for further information.
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ALMAR EASY SLITTER

This attachment eliminates necessity of an 8' or 10' squaring shear wherever this type of work is limited. Installed on brake in three minutes or can be used on bench. Will cut 28, 26 and 24 ga. metal easily, with neat, accurate edge. Low in price. Fully guaranteed.

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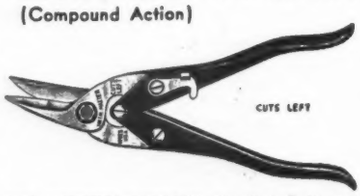
(Compound Action)



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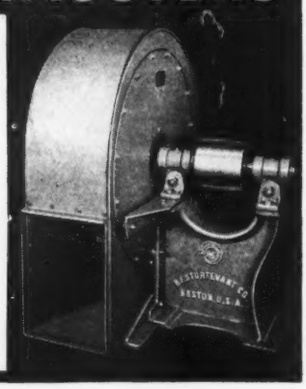

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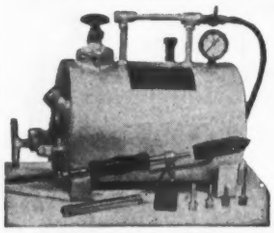

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667 Norwood Terrace, Elizabeth, N. J.

avoid dirt and fumes from entering the basement.

It is well to remember that a pleased customer is your best advertising asset. There are any number of homeowners in your territory that need your expert advice on this very problem of a chimney that does not work properly. Seek them out and mutually benefit thereby.

Article 2 Will Follow

◆

Earl Sidwell Dies

Earl W. Sidwell, 54, president of Armstrong Furnace Co., Columbus, Ohio, died July 29 of a cerebral hemorrhage. Burial at Logansport, Indiana.

Mr. Sidwell has been at the head of the Armstrong Furnace Company for approximately 12 years. Prior to that he had been sales manager for the Robinson Furnace Company of Chicago; sales manager for Round Oak Furnace Company, Dowagiac, Micigan; and in the furnace business all of his life. He managed a retail branch when he was a young man for Williamson Heater Company of Cincinnati at Dayton, Ohio. From there he went to the Buck Stove and Range Company; St. Louis, as manager of their furnace division. He also traveled in Michigan as salesman for the Lennox Furnace Company before he went with Round Oak Furnace Company. He was a widely known individual in the furnace industry because his work caused him to contact nearly all of the other manufacturers of warm air heating equipment.

Mr. Sidwell leaves beside his wife, Lola M. Sidwell, a brother E. H. Sidwell of Loveland, Ohio.

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◆

Small Business Section Formed in Dept. of Justice

CREATION of a small business section in the anti-trust division of the Justice Department was announced September 1. According to Assistant Attorney General Thurman Arnold the new section will be devoted to assisting small business firms in their relation with the government, including problems arising from the rearmament program and remedies that may be found through enforcement of the anti-trust laws.

Guy Holcomb of Atlanta, Georgia, heads the section.

BB

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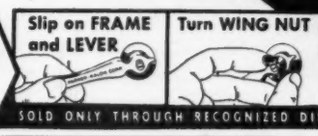

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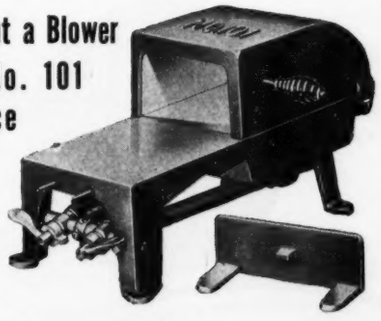

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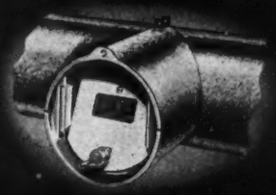

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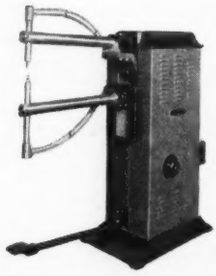

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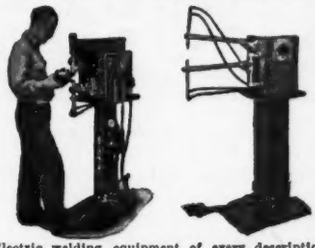

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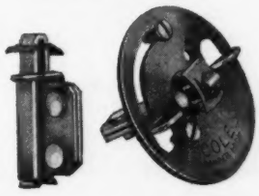

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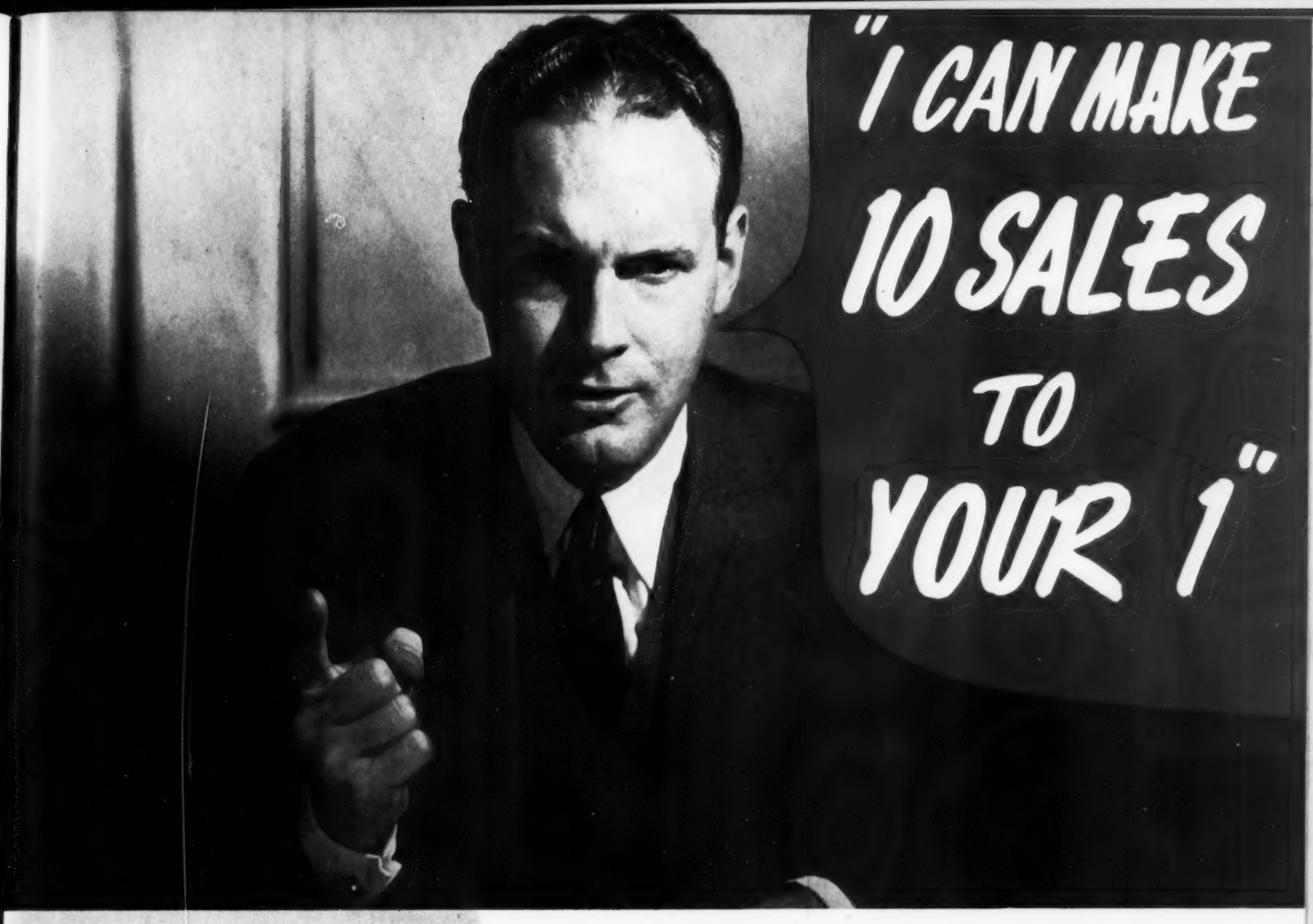

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Cook Electric Company,
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Quick, easy installation for *bigger profits* on every job

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